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PAPERS AND PROCEEDINGS
OF THE
Sixty-eighth Annual Meeting
OF THE
AMERICAN ECONOMIC ASSOCIATION
New York, New York, December 28-30, 1955

*Edited by James Washington Bell, Secretary of the Association
and
Gertrude Tait, Executive Assistant*

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PROGRAM OF THE SIXTY-EIGHTH ANNUAL MEETING OF THE
AMERICAN ECONOMIC ASSOCIATION

New York, New York, December 28-30, 1955

The central theme of this year's program was the economic growth of the United States. Both secular and periodic phases of the problem were explored in the series of ten sessions on "Economic Growth." A number of joint sessions were also related to this theme, either in its domestic or foreign aspects. Fourteen sessions in all and two joint luncheon meetings were held with other associations. The papers of eighteen sessions appear in this volume, including ten of the "Economic Growth" series. It is hoped that the papers of the remaining joint sessions will find publication outlets elsewhere.

Wednesday, December 28, 1955

10:00 A.M.

Meeting of the Executive Committee

12:00 P.M.

Luncheon Meeting of the Executive Committee

Luncheon Meeting (joint session with the American Statistical Association)

The Economic Outlook

Chairman: MARTIN R. GAINSBROUGH, National Industrial Conference Board

Speakers: EDWIN G. NOURSE, Joint Council on Economic Education; ALLAN H. TEMPLE, First National City Bank of New York

2:30 P.M.

Economic Growth I. Statement of the Problem of Keeping the United States Economy Moving Forward, But Steadily

Chairman: CALVIN B. HOOVER, Duke University

Papers: CALVIN B. HOOVER, Duke University; MOSES ABRAMOVITZ, National Bureau of Economic Research; PAUL T. HOMAN, University of California at Los Angeles

Discussion: WILLIAM J. FELLNER, Yale University; FRED V. WAUGH and JAMES P. CAVIN, U.S. Department of Agriculture; DAVID McCORD WRIGHT, McGill University

Publication Problems in the Field of Economics

Chairman: DAN LACY, American Book Publishers Council

Panel: GEORGE BROCKWAY, W. W. Norton and Company; A. C. EDWARDS, Henry Holt and Company; VICTOR REYNOLDS, Association of American University Presses; BERNARD F. HALEY, American Economic Review; SEYMOUR E. HARRIS, Harvard University

The Pure Theory of Public Expenditure (joint session with the Econometric Society)

Chairman: OSWALD BROWNLEE, University of Minnesota

Papers: PAUL A. SAMUELSON, Massachusetts Institute of Technology; RICHARD A. MUSGRAVE, University of Michigan

Discussion: JULIUS MARGOLIS, University of California; WALTER S. SALANT, Brookings Institution

The Changing Patterns of Competition in Transportation and Other Public Utility Lines

Chairmen: EDWARD W. MOREHOUSE, General Public Utilities Corporation, and JAMES C. NELSON, Washington State College

Papers: CHARLES A. TAFF, University of Maryland; WALTON SEYMOUR, Consultant, Washington, D.C.; MARTIN L. LINDAHL, Dartmouth College

Discussion: FRED V. STONE, Canadian Pacific Railway; MARTIN G. GLAESER, University of Wisconsin

The Economic Potentials of Latin America

Chairman: NORMAN S. BUCHANAN, Rockefeller Foundation

Papers: SUNE CARLSON, United Nations; THEODORE W. SCHULTZ, University of Chicago

Discussion: GEORGE GARVY, Federal Reserve Bank of New York; EMILIO G. COLLANO, Standard Oil Company (New Jersey); SIMON ROTTENBERG, University of Chicago

8:30 P.M.

Economic Growth II. The Production and Consumption Economics of Economic Growth

Chairman: MILTON S. HEATH, University of North Carolina

- Papers:* W. DUANE EVANS, Bureau of Labor Statistics; RUTH P. MACK, National Bureau of Economic Research; ARYNESS JOY WICKENS, Bureau of Labor Statistics
Discussion: ROBERT FERBER, University of Illinois
Current Economic Thought and Its Application and Methodology in Continental Europe
Chairman: ALEXANDER GERSCHENKRON, Harvard University
Papers: HANS BREMS, University of Illinois; HANS THEIL, University of Chicago; NICOLAS SPULBER, Indiana University; THEAD P. ALTON, Columbia University
Tariff Policy for the U.S.A., a Strong, Rich Country (joint session with the American Farm Economic Association)
Chairman: CHARLES P. KINDLEBERGER, Massachusetts Institute of Technology
Panel: DON D. HUMPHREY, Duke University; LAWRENCE W. WITT, Michigan State University; RICHARD M. BISSELL, JR., Washington, D.C.; DENNIS W. FITZGERALD, International Cooperation Administration; DONALD B. MARSH, McGill University
Are Union Practices Monopolistic? (joint session with the Industrial Relations Research Association)
Chairman: RICHARD A. LESTER, Princeton University
Paper: EDWARD S. MASON, Harvard University
Panel: PETER O. STEINER, University of California; JULES BACKMAN, New York University; PETER HENLE, American Federation of Labor; CHARLES C. KILLINGSWORTH, Michigan State University; MATTHEW A. KELLY, New York Employing Printers Association

Thursday, December 29, 1955

9:00 A.M.

Report of the Attorney General's Committee on Antitrust Policy

- Chairman:* CORWIN D. EDWARDS, University of Chicago
Papers: EDWARD S. MASON, Harvard University; KINGMAN BREWSTER, Harvard University; CLAIR WILCOX, Swarthmore College
Discussion: GEORGE W. STOCKING, Vanderbilt University; ALFRED E. KAHN, Cornell University; CLARE E. GRIFFIN, University of Michigan; GEORGE J. STIGLER, Columbia University

9:30 A.M.

Economic Growth III. Income Distribution Aspects of Expanding Production and Consumption (joint session with the American Statistical Association)

- Chairman:* PAUL A. SAMUELSON, Massachusetts Institute of Technology
Papers: WILLIAM A. SALANT, Brandeis University; JOHN LINTNER, Harvard University
Discussion: LLOYD ULMAN, University of Minnesota; LORIE TARSHIS, Stanford University; THOMAS C. SCHELLING,¹ Yale University

Economic Growth VII. The Shortening Work Week as a Component of Economic Growth (joint session with the Industrial Relations Research Association)

- Chairman:* GERHARD COLM, National Planning Association
Paper: CHARLES STEWART, U.S. Department of Labor
Panel: CLARK KERR, University of California; SOLOMON BARKIN, Textile Workers Union of America; NELSON N. FOOTE, University of Chicago; LESTER KELLOGG,¹ Deere and Company; HAROLD G. HALCROW, University of Connecticut

Economic Growth X. Urban Growth and Development (joint session with the Regional Science Association)

- Chairman:* WALTER ISARD, Massachusetts Institute of Technology
Papers: DONALD J. BOGUE, University of Chicago; CHESTER RAPKIN, University of Pennsylvania
Discussion: MARTIN MYERSON,¹ University of Pennsylvania; JOSEPH L. FISHER, Resources for the Future, Inc.

The Dynamics of Food Retailing (joint session with the American Marketing Association and the American Farm Economic Association)

- Chairman:* JOSEPH ACKERMAN, Farm Foundation
Papers: ROBERT W. MUELLER, The Progressive Grocer; WILLIAM APPLEBAUM, Marketing Consultant
Supplementary Statements: R. D. HARDESTY, Kroger Company; RICHARD H. HOLTON, Harvard University

¹ No manuscript received.

11:00 A.M.

Advantages of the Large Firm: Production, Distribution, and Sales Promotion (joint session with the American Marketing Association)

Speaker: JOE S. BAIN, University of California

12:00 M.

Luncheon Meeting (joint session with the American Finance Association)²

Speaker: ALLAN SPROUL, Federal Reserve Bank of New York

2:00 P.M.

Federal Reserve Board Committee Reports: I. Saving Statistics and Consumer Expectations (joint session with the American Statistical Association)

Chairman: RALPH A. YOUNG, Board of Governors of the Federal Reserve System

Papers: RAYMOND GOLDSMITH, National Bureau of Economic Research; JAMES TOBIN, Yale University

Discussion: MORRIS COHEN, National Industrial Conference Board; GEORGE KATONA, University of Michigan

2:30 P.M.

The Population Specter: Rapidly Declining Death Rates in Densely Populated Countries (joint session with the American Farm Economic Association)

Chairman: MERRILL K. BENNETT, Food Research Institute

Papers: KINGSLEY DAVIS, University of California; CHARLES E. KELLOGG, U. S. Department of Agriculture; REUBEN E. SLESINGER, University of Pittsburgh; JOSEPH J. SPENGLER, Duke University

Economic Growth IV. The Increase-of-Consumption Part of Economic Growth

Chairman: ASHER ISAACS, University of Pittsburgh

Papers: ELIZABETH GILBOY, Harvard University; JAMES DUESENBERY, Harvard University

Reports: JOHN B. LANSING, University of Michigan; IRWIN FRIEND, University of Pennsylvania; HAROLD W. GUTHRIE, Yale University

Economic Growth V. Government Expenditures and Economic Growth

Chairman: ROY BLOUGH, Columbia University

Papers: C. LOWELL HARRISS, Columbia University; DAN T. SMITH, Harvard University

Discussion: WALTER FROELICH, Marquette University; JOHN F. DUE, University of Illinois; MARION CLAWSON, Resources for the Future, Inc.

4:00 P.M.

Productivity: Long-run Trends and Short-run Fluctuations (joint session with the American Statistical Association)

Chairman: RAYMOND T. BOWMAN, Office of Statistical Standards

Papers: JOHN KENDRICK, National Bureau of Economic Research; THOR HULTGREN, National Bureau of Economic Research

Discussion: JAMES KNOWLES, Joint Committee on the Economic Report; MILTON LIPTON, National Industrial Conference Board

8:30 P.M.

Presidential Address

Chairman: JOHN M. CLARK, Columbia University

Paper: JOHN D. BLACK,³ Harvard University

Friday, December 30, 1955

8:00 A.M.

Breakfast Meeting: Development and Use of Case Materials in Education for Business

Chairman: RAYMOND W. COLEMAN, West Virginia University

Papers: ANDREW R. TOWL, Harvard University; WILEY MITCHELL, University of Kansas

² To be published in the *Journal* of the American Finance Association.

³ Published in the March, 1955, issue of the *American Economic Review*.

8:30 A.M.

Federal Reserve Board Committee Reports: II. Inventory Statistics, Investment Expectations, General Business Expectations (joint session with the American Statistical Association)

Chairman: MARTIN R. GAINSBURGH, National Industrial Conference Board

Papers: IRWIN FRIEND, University of Pennsylvania; WILLIAM SHAW, Du Pont

Discussion: JOHN W. LEHMAN, Joint Committee on the Economic Report; ROBERT EISNER, Northwestern University

9:30 A.M.

Economic Growth VI. The Monetary Role in Balanced Economic Growth

Chairman: JAMES W. ANGELL, Columbia University

Paper: CHARLES R. WHITTLESEY, University of Pennsylvania

Panel: EDWARD S. SHAW, Stanford University; PAUL W. MCCracken, University of Michigan; HOWARD S. ELLIS, University of California; IRA O. SCOTT, University of Minnesota

Economic Growth VIII. Highway Development and Financing (joint session with the American Finance Association)

Chairman: WALTER W. HELLER, University of Minnesota

Paper: WALTER W. HELLER and OSWALD BROWNLEE, University of Minnesota

Panel: HAROLD M. GROVES, University of Wisconsin; JAMES C. NELSON, Washington State College; WILLIAM D. ROSS, Louisiana State University; ARNOLD M. SOLOWAY, Harvard University; HAROLD W. TORGERSON, Northwestern University

Economics in the Curricula of Schools of Business

Chairman: RAYMOND T. BOWMAN, University of Pennsylvania

Paper: NEIL H. JACOBY, University of California

Discussion, by Universities: GEORGE LEE BACH, Carnegie Institute of Technology; MELVIN G. DE CHAZEAU, Cornell University; DONALD W. O'CONNELL, Columbia University; ARTHUR M. WEIMER, University of Indiana; EWALD T. GREYER, University of California

The Land Tenure Situation Around the World (joint session with the American Farm Economic Association)

Chairman: JOSEPH ACKERMAN, Farm Foundation

Papers: KENNETH H. PARSONS, University of Wisconsin; LEE R. MARTIN, North Carolina State College; JOSE VARGAS, Spanish Embassy; THOMAS H. STRONG, Bureau of Agricultural Economics, Australia; EDMUNDO FLORES, Nacional Financiera, Mexico; JOE MOTHEHAL, U. S. Department of Agriculture

2:30 P.M.

Economic Growth IX. Unemployment as a Phase of Economic Growth

Chairman: EDWIN G. NOURSE, Joint Council on Economic Education

Papers: ISADOR LUBIN, Industrial Commissioner, State of New York; ALBERT G. HART, Columbia University

Discussion: EWAN CLAGUE, U. S. Department of Labor; LAZARE TEPER, International Ladies' Garment Workers' Union; ALBERT S. EPSTEIN, International Association of Machinists

The Economic Potentials of Africa

Chairman: JOHN W. GARDNER, Carnegie Corporation of New York

Papers: WILLIAM A. HANCE, Columbia University; MELVILLE J. HERSKOVITS, Northwestern University

Discussion: LLOYD G. REYNOLDS, Yale University; CALVIN W. STILLMAN, University of Chicago; SANFORD A. MOSK, University of California

Economic Thought and Its Application and Methodology in the East

Chairman: JOHN M. CLARK, Columbia University

Papers: MARTIN BRONFENBRENNER, University of Wisconsin; MAX F. MILLIKAN, Massachusetts Institute of Technology; DON PATINKIN, Hebrew University

Discussion: OVERTON H. TAYLOR, Harvard University; JOHN M. CLARK, Columbia University

Minimum Wages and Other Labor Standards Considered in Relation to Economic Growth in Underdeveloped Countries (joint session with the American Farm Economic Association)

Chairman: KARL BRANDT, Stanford University

Papers: ELMO P. HOHMAN, Northwestern University; JEANNE S. MINTZ, New York City; LOUIS J. DUCOFF, U. S. Department of Agriculture

Supplementary Statements: EGBERT DE VRIES, International Bank for Reconstruction and Development; JOHN P. WINDMULLER, Cornell University; J. HENRY RICHARDSON, University of California

5:00 P.M.

Business Meeting

6:00 P.M.

Dinner Meeting of the Executive Committee

THE purpose of the American Economic Association, according to its charter, is the encouragement of economic research, the issue of publications on economic subjects, and the encouragement of perfect freedom of economic discussion. The Association as such takes no partisan attitude, nor does it commit its members to any position on practical economic questions. It is the organ of no party, sect, or institution. Persons of all shades of economic opinion are found among its members, and widely different issues are given a hearing in its annual meetings and through its publications. The Association, therefore, assumes no responsibility for the opinions expressed by those who participate in its meetings. Needless to say, the papers presented are the personal opinions of the authors and do not commit the organizations or institutions with which they are associated.

JAMES WASHINGTON BELL
Secretary

ECONOMIC GROWTH I. STATEMENT OF THE PROBLEM OF KEEPING THE UNITED STATES ECONOMY MOVING FORWARD, BUT STEADILY
SCOPE AND OBJECTIVES OF TEN SESSIONS ON ECONOMIC GROWTH

By CALVIN B. HOOVER
Duke University

President Black has asked me to make an introductory statement. I shall not list the session topics since these are printed in the program. I shall try to set forth the general purpose of our sessions on economic growth, indicating something of the rationale according to which the subject was broken down into the individual sessions which we are devoting to it and indicating some of the relationships of the sessions to each other and to the general theme.

The almost universal shift in emphasis among economists from problems of how to maintain economic stability to problems of economic growth is now a commonplace. The importance currently accorded it is measured by the ten sessions which we are devoting to it. This shift in emphasis reflects both the apparent diminution in the vulnerability of national economics to economic depressions and the fact of impressive increases in economic growth in almost all types of national economies during the postwar period, whether capitalistic or collectivist, whether industrialized or underdeveloped.

There is an unusual opportunity for new ground to be broken in these ten sessions and there is every indication that this is going to be done. We are concerned with the past record of economic growth and our first paper arrays and analyzes this record. We are concerned with the factors which have been responsible for the rate of growth and for variations in its rate and this subject is dealt with in several sessions. It is noteworthy how stimulating to theoretical analysis this examination of the past record of economic growth can be. What have been the roles of increases in inputs of natural, capital, and labor resources compared with the role of increases in productivity of these inputs in accounting for growth over time? If we are to answer this question, we must first ask how we are to isolate growth due to variations in the inputs of capital and labor from growth due to changes in the productivity of these inputs. We can identify increases in units of labor inputs over time without too much difficulty, but how are we to identify changes in inputs of capital without assigning values to such inputs and how are

we to isolate changes in the value of capital inputs from changes in the productivity of these capital units?

Indeed, can we assign increases in productivity through time to factors of production at all? Can the economist deal with these concepts other than upon the basis of imputation? If we were to do this upon the basis of imputation of returns to factors we would have to assign a factor status to improvements in technology if we are to keep our analysis symmetrical. This in turn would present serious conceptual difficulties. After the fact of increased productivity, its imputation, of course, is not determined by its factor origin and the number of value units of the factor capital may be affected by changes in productivity through time. This analysis of past rates of growth thus becomes a most fruitful source of intellectual stimulus.

The fact of so impressive and sustained a rate of growth in so many countries makes it appropriate for us to raise questions quite beyond those of what has happened in the past and of what can be done to maintain or increase existing rates of growth. In our second paper we consider alternative social goals which might be attained through economic growth and alternative priorities which might be assigned to the reaching of these goals. How much of the additional social product made possible by economic growth can or should be devoted to consumption and how much to capital formation? How much to goods and how much to leisure? Within what limits may the distribution of the increased national product be varied?

The degree of economic stability or instability still importantly affects the rate of economic growth, and some of our sessions deal with the problem of relations between growth and instability, including the problem of unemployment as a phase of economic growth. If past rates of growth occurred when the prices of goods and services, the compensation of factors and the distribution of income were determined under the assumptions of laissez faire and of competition, of the existence of private property and consumer sovereignty, how importantly may rates of growth be affected by changing these assumptions with respect to the future? These questions arise just as soon as we assume some collective choice among alternative goals and priorities. What might be the effect upon the rates of growth of consciously adopted measures to alter the distribution of the increased national product? We must consider the role of government in affecting rates of growth, within a range which reaches from governmental monetary and fiscal policies through measures designed to redistribute national income by means of taxation or minimum wage legislation, to the dynamic role of governmental expenditures themselves, as in the case of the planning and financing of highways.

Our session which deals with "The Increase of Consumption Part of Economic Growth" well illustrates the problems which arise when we attempt to apply an economic theory which has been largely based upon static assumptions and microrelations to problems of economic growth. Thus we have papers which deal with the role of price and income elasticities of demand as determinants of growth. These price and income elasticity concepts were, however, developed in connection with price determination for particular goods, which involved exchange relationships between goods. It becomes quite a different matter to use price and income elasticities as determinants affecting growth in the entire economy. This represents another area in which new ground may be broken in this series of sessions.

A matter not unrelated with this question of the applicability of exchange value concepts to the theory of economic growth is that of whether or not the validity of our measures of economic growth may not become impaired by growth itself. On the one hand, it might be argued that the economic growth potential in the future is greatly expanded as the relative importance of secondary and tertiary industries in national income expands in proportion to that of the primary industries. It might be argued that value product per capita may increase much more rapidly as soon as society can devote its resources to secondary and tertiary rather than to primary industries, as society emancipates itself from the limitations set by the necessity for increasing actual physical quantities of goods in order to increase gross national product.

But such an argument would raise the question of the effect upon the rate of future growth of increasing the proportion of resources employed in secondary and tertiary industries and in the various subdivisions of these categories and even of the validity of indices which purported to show increases in value product through shifts in the proportion of resources so employed. This problem is only one aspect of the difficulties involved in measuring economic growth. So long as economic growth could be measured at least roughly through increases in physical units produced of, say, copper and corn, our measures of value were still useful even if they were originally intended to express exchange values and not changes in aggregate value through time. When a larger proportion of gross national product comes to reflect the value product of, say, the television industry as well as, say, the value product of research scientists in industry and in government, neither of which can readily be measured in meaningful physical units, we have essentially the same problem of measurement which is involved in trying to measure changes in quality of product through time. The different results attainable when national GNP's are compared upon the

basis of the prices and weights of one country or alternatively when based upon those of others as shown by the OEEC study in this field may well serve to suggest the conceptual difficulties in time comparisons as well as area comparisons.¹

In this first session, Dr. Abramovitz gives us an analysis of our past record of economic growth and Dr. Homan sets before us alternative goals and priorities in economic growth. Upon this foundation of past experience and within this framework of goals and priorities we count upon our succeeding sessions to build.

¹ Milton Gilbert and Irving B. Kravis, *An International Comparison of National Products and the Purchasing Power of Currencies: A study of the United States, the United Kingdom, France, Germany and Italy* (Paris: OEC, 1953).

RESOURCE AND OUTPUT TRENDS IN THE UNITED STATES SINCE 1870*

By MOSES ABRAMOVITZ
Stanford University

I. Introduction

This paper is a very brief treatment of three questions relating to the history of our economic growth since the Civil War: (1) How large has been the net increase of aggregate output per capita, and to what extent has this increase been obtained as a result of greater labor or capital input on the one hand and of a rise in productivity on the other? (2) Is there evidence of retardation, or conceivably acceleration, in the growth of per capita output? (3) Have there been fluctuations in the rate of growth of output, apart from the short-term fluctuations of business cycles, and, if so, what is the significance of these swings?

The answers to these three questions, to the extent that they can be given, represent, of course, only a tiny fraction of the historical experience relevant to the problems of growth. Even so, anyone acquainted with their complexity will realize that no one of them, much less all three, can be treated satisfactorily in a short space. I shall have to pronounce upon them somewhat arbitrarily. My ability to deal with them at all is a reflection of one of the more important, though one of the less obvious, of the many aspects of our growing wealth; namely, the accumulation of historical statistics in this country during the last generation.

For the most part, the figures which I present or which underlie my qualitative statements are taken directly from tables of estimates of national product, labor force, productivity, and the like compiled by others. In a few cases I have ventured to compute ratios or extend the tables forward or backward by combining estimates. But no original estimates depending on the compilation or reworking of primary data are included.

*I should like to thank Professor Simon Kuznets and Mr. J. W. Kendrick who made available to me certain unpublished estimates of national product, productivity, capital stock, and hours of work. Their contributions are further described in the notes to Table 1. I am grateful to Richard A. Easterlin, Solomon Fabricant, J. W. Kendrick, and G. H. Moore for their critical review of the manuscript and to Mrs. Charlotte Boschan for assisting in its preparation.

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The period since 1870 has an important unifying characteristic in that throughout these eighty years the economy has been growing in response to the complex of cumulative forces which we generally call industrialization. It is quite clear, however, that 1870 was not the beginning of the process of industrialization in this country. The proportion of gainful workers in agriculture fell from 71 per cent in 1820 to 64 per cent in 1850. It fell another 10 percentage points by 1870. Steam transport by water and rail was already common when the period begins. The proportion of the gainfully employed engaged in manufacturing and construction rose from 12 to 21 per cent between 1820 and 1870. Real per capita output rose significantly during the 1850's. It was set back by the Civil War, but aggregate output well-nigh doubled from 1850 to 1870.¹ The data before 1870—and still more before 1850—are highly dubious, but it seems clear that the period since 1870 does not include the entire era of industrialization and rapid income rise in this country. We are, in an important sense, dealing with a period arbitrarily delimited by the availability of fairly reliable comprehensive figures.

It may be of some use if I try to state at the very beginning the three main conclusions of my paper. First, between the decade 1869-78 and the decade 1944-53, net national product per capita in constant prices approximately quadrupled, while population more than tripled. The source of the great increase in net product per head was not mainly an increase in labor input per head, not even an increase in capital per head, as these resource elements are conventionally conceived and measured. Its source must be sought principally in the complex of little understood forces which caused productivity, that is, output per unit of utilized resources, to rise.

Second, it is not clear that there has been any significant trend in the rates of growth of total output and of output per head. It is true that national product estimates, on their face, suggest some decline in the rates of growth—somewhat more clearly for total output; somewhat less clearly for output per capita. It is doubtful, however, whether the data can be accepted with confidence for this purpose and still more doubtful whether the apparent retardation in growth, such as it is, represents the effect of persistent forces. Insofar as one can observe a decline in the rate of growth, its source is not in the productivity of resources, which has continued to grow at a steady, perhaps an accelerat-

¹ These are W. I. King's figures (*The Wealth and Income of the People of the United States*, Macmillan, 1915, Table XXIII), as deflated by Simon Kuznets ("Long-Term Changes in the National Income of the United States of America since 1870"—hereinafter called "Long-Term Changes"—published in *Income and Wealth of the United States*, edited by Simon Kuznets, Cambridge, Bowes and Bowes, 1952, p. 240).

ing, pace. Its source has been a decline in the rate of growth of labor input per head and of capital input per head.

Third, the rate of growth of output has not been even. In addition to ordinary business cycles, the rate of growth has risen and fallen since 1870 in long waves of approximately twenty years' duration. Preliminary study suggests that these waves represent, in the main, surges in productivity or resource supply rather than in the proportion of our resources employed. An adequate understanding both of the history of our growth and of our prospects during the next generation depends on our ability to determine whether these surges and relapses are to some significant degree truly recurrent or wholly fortuitous.

II. *The Average Rate of Growth, 1869-1953*

My first problem has to do with the over-all expansion of our economy since 1870. My principal criterion of growth is net national product per capita in 1929 prices, and since I use Kuznets' data, I follow him in measuring the increase by comparing average product and related data for labor, capital, and so on, for the decade 1869-78 with that for the decade 1944-53.² Comparisons based on such decade averages eliminate most but, of course, not all the effects of business cycles, which might otherwise serve to distort somewhat our impressions of the long-term rate of growth. They do not protect our measures from the effects of fluctuations longer in duration than business cycles, the so-called "secular swings," which I shall discuss later. It would be better to calculate rates of growth from properly derived trend values. But in measures for a period as long as eighty years, when growth was so rapid, the distortion resulting from secular swings will not prevent us from seeing the broad outlines of the picture, and I judged it unnecessary to calculate statistical trend lines for this purpose.

1. Net national product in the decade 1944-53 stood about thirteen times as high as it had in 1869-78 (Table 1). This increase implies an average rate of growth of 3.5 per cent per annum. Population, however, more than tripled in the same period. Net product per capita, therefore, approximately quadrupled, implying an average rate of growth of 1.9 per cent per annum.

These calculated rates of increase are only rough approximations of the figures we are really after. Long-term estimates of national products are inevitably marred by statistical weaknesses, biases, and uncertainties of conception. (Cf. Kuznets, "Long-Term Changes," pages

² Professor Kuznets has very kindly permitted me to use his newly revised estimates extended to 1953. These are, as yet, unpublished, but very similar figures are published in "Long-Term Changes." The broad concepts on which the data are based and the methods of estimate are described in that volume, pp. 29-34. The latter have been altered in certain details in ways which Professor Kuznets will describe in a later publication.

33-47.) We must accept the fact that even the most comprehensive and consistent measures of our rate of expansion must be treated with a great deal of reserve.

2. The quadrupling—more or less—of net national product per capita resulted in part from an increase in the input of resources per capita and in part from a rise in the productivity, that is, the output per unit, of representative units of resources. However, the shares of these two elements, insofar as they can be separated, were very different. The input of resources per head of the population appears to have increased relatively little while the productivity of resources increased a great deal. How does this arise?

The input of resources is usually conceived to consist of labor services, including salaried management, and property or capital services, to which is attached the contributions of entrepreneurship made in connection with the investment of capital in industry. If we measure labor services in man-hours, as is usually done, we find that labor in-

TABLE 1
MEASURES OF U.S. ECONOMIC GROWTH, 1869-78 TO 1944-53

		Relatives for 1944-53 (1869-78 = 100)
(1)	Net national product.....	1,325
(2)	Population.....	334
(3)	Net national product per capita.....	397
(4)	Labor force.....	423 (393)
(5)	Ratio: labor force to population.....	127 (118)
(6)	Employment.....	427 (396)
(7)	Ratio: employment to population.....	128 (119)
(8)	Standard hours.....	73
(9)	Man-hours.....	312 (290)
(10)	Man-hours per capita.....	94 (87)
(11)	Capital.....	993
(12)	Capital per capita.....	297
(13)	Index of total input of resources.....	381 (361)
(14)	Index of input per capita.....	114 (108)
(15)	Net national product per employed worker.....	310 (334)
(16)	Net national product per man-hour.....	426 (458)
(17)	Net national product per capital unit.....	134
(18)	Index of net national product per unit of total input.....	348 (367)

Figures in parentheses exclude armed forces.

All the figures in this table, unless otherwise noted, were drawn from series of averages for overlapping decades running 1869-78, 1874-83, etc.

The units of the data from which the relatives were calculated are shown in the notes to each line.

Line:

- (1) Newly revised estimates by Simon Kuznets (billions of dollars in 1929 prices) to be published and described in the Summary Volume on *Capital Formation and Financing*, Part B.

- (2) *Ibid.*, Part E. Decade averages computed from annual data underlying five-year moving averages to be published.
- (3) Line (1) ÷ line (2) (1929 dollars per person).
- (4) See line (2).
- (5) Line (4) ÷ line (2) (per cent).
- (6) Line (4) less estimated unemployment (millions) as follows: 1869-78 to 1884-93: from J. Schmookler, "The Changing Efficiency of the American Economy, 1869-1938," *Review of Economics and Statistics*, August, 1952, Table 3, col. (2). 1889-98 to 1939-48: by applying unemployment percentage from Kuznets, "Long-Term Changes," Table 10, col. (1) to his estimates of the civilian labor force and adding armed forces. From 1889-1918, the labor force figures were first divided into agricultural and nonagricultural segments. The unemployment percentages, which for those years represent only nonagricultural unemployment, were applied to the latter only. 1944-53: By applying ratio of civilian employment to civilian labor force as estimated by Census (*Survey of Current Business*, 1955 Biennial Edition, p. 56) to Kuznets' estimate of civilian labor force and adding armed forces.
- (7) Line (6) ÷ line (2) (per cent).
- (8) 1869-78 to 1939-48: from Kuznets, *op. cit.*, Table 7, col. (1). 1944-53: extrapolated on the basis of the movement of estimates kindly supplied to the author by J. W. Kendrick. (Hours per week.)
- (9) Line (6) × line (8) (millions of man-hours per week).
- (10) Line (9) ÷ line (2) (weekly hours per capita).
- (11) 1874-83 to 1939-48: Kuznets, *op. cit.*, Table 11, col. (3). Single figures are provided once each decade, 1879 to 1939, for years running 1879, 1889, etc. In addition there are figures for 1934 and 1944. The given data are assumed to represent averages for decades whose central points they approximate (1879 for 1874-83, etc.). Overlapping decades interpolated where necessary by straight line arithmetic interpolations from both preceding and succeeding observations. The two results were then averaged. 1869-78: Extrapolated from 1874-83 by movement of estimates by Schmookler, *op. cit.*, Table 5, col. (3). 1944-53: Extrapolated from 1939-48 on basis of estimates kindly supplied by J. W. Kendrick (billions of dollars in 1929 prices).
- (12) Line (11) ÷ line (2) (dollars per person).
- (13) Weighted index of relatives (1919-28 = 100), combining man-hours × 3 and capital × 1. Weights represent the relative values of service incomes and property incomes respectively as estimated by J. W. Kendrick for 1929 and supplied to author. Kendrick's relative weights were, more precisely, 72:28.
- (14) Weighted index of relatives (1919-28 = 100), combining man-hours per capita and capital per capita with weights as in line (13).
- (15) Line (1) ÷ line (6) (dollars per employed in 1929 prices).
- (16) Line (1) ÷ line (9) (dollars per man-hour).
- (17) Line (1) ÷ line (11) (cents per dollar of capital).
- (18) Index of NNP ÷ index of total input of resources (1919-28 = 100).

put per capita declined slightly between the seventies and the present. This resulted from the counteraction of two trends. The labor force ratio, that is, the ratio of labor force to population, grew about 25 per cent as a result of changes in the age composition of the population, because of the shift of people from farms to cities, and because the great increase in the participation of women in work offset the withdrawal of young people to school and of elderly men to earlier retirement. On the other hand, the reduction in working hours more than counterbalanced the increase in the labor force ratio.⁸

⁸ Cf. C. D. Long, *The Labor Force under Changing Employment and Income* (National Bureau of Economic Research; in press), Chap. XI. While there may have been some difference in the percentage of unemployment between the 1870's and the 1950's, the great decline in working time per member of the labor force was due to a reduction in hours of work. The change in working hours recorded in our table is based on a series appearing in Kuznets' "Long-Term Changes" extended an extra decade on the basis of

The physical volume of capital, of course, increased much more rapidly than population. An estimate of total capital, which takes account of land, structures, producers' durable equipment, inventories and net foreign claims, increased to nearly ten times its size seventy-five years ago. Capital per head of the population approximately tripled.⁴

What has been the increase in the input of all resources per capita? Suppose we combine our indexes of labor input per capita and of cap-

Kendrick's figures. But other estimates make the long-term decline somewhat less or more. For comparison, the following alternatives are of interest:

	Base Period	Given Year or Period	Index of Average Hours in Given Year (Base = 100)
(1) Kuznets, Standard Hours	1869-78	1944-53	73
(2) Dewhurst and Fichlander, Actual Hours	1870-80	1950	62
(3) Barger, Actual Hours in Commodity Production	1869-79	1949	83
(4) Barger, Actual Hours in Distribution	1869-79	1949	66
(5) Kuznets, Standard Hours	1894-1903	1944-53	79
(6) Kendrick, Actual Hours	1899	1953	83

SOURCES:

Line (1)—"Long-Term Changes," Table 7. Figures extended from 1939-48 to 1944-53 on the basis of estimates kindly supplied by J. W. Kendrick.

Line (2)—Dewhurst and Associates, *America's Needs and Resources, A New Survey* (Twentieth Century Fund, 1955), Appendix 20-4.

Line (3)—*Distribution's Place in the American Economy since 1869*, Table 5.

Line (4)—Same as line (3).

Line (5)—Same as line (1).

Line (6)—Supplied by J. W. Kendrick.

* Estimates of capital wealth are extremely rough and must be treated with great reserve. While there is no doubt that capital increased much faster than population, we may well doubt whether the relative increase was just that suggested by the figures. Our figures are based on the table presented by Kuznets for the years 1879-1944 ("Long-Term Changes," Table 11). See notes to Table 1. The figures may be compared with R. W. Goldsmith's estimates ("Derivation of a Perpetual Inventory of National Wealth since 1896," *Studies in Income and Wealth*, Vol. 14, National Bureau of Economic Research, p. 18).

	Relatives for 1944		Ratio (2) ÷ (1)
	Goldsmith (1900 = 100)	Kuznets (1899 = 100)	
	(1)	(2)	
Land	133	208	1.56
Reproducible wealth*	271	344	1.27
Total	216	284	1.31

* Structures, producers' durable equipment, inventories and net foreign claims.

Neither Goldsmith's figures nor Kuznets' are free of serious difficulties due to weaknesses in the statistical sources of capital data and to problems of valuation and deflation. (See Kuznets, *op. cit.*, pp. 79-80, and Goldsmith, *op. cit.*, *passim*, and following comments by Kuznets.) It is possible that the true increase of capital lies outside the range suggested by both sets of figures. Our figures make no allowance for changes in the service hours of capital comparable with that for labor. There is no statistical basis for such an adjustment. The decline in labor hours is not a reliable indication since capital is often operated on multiple shifts or even continuously. It is not clear whether such practices have grown or declined.

ital supply per capita with weights proportionate to the base period incomes going to labor and property, respectively. If we may equate productivity with earnings, we obtain a combined index of resources which has a particular meaning. It tells us how net national product per capita would have grown had the productivity of resources remained constant at base period levels while only the supplies of resources per head increased. Such an index, based on the twenties, rises only some 14 per cent between the seventies and the last decade. To account for the quadrupling of net national product per capita, the productivity of a representative unit of all resources must have increased some 250 per cent. This seems to imply that almost the entire increase in net product per capita is associated with the rise in productivity. This result may arise in some part from our choice of a base period. We chose a fairly recent base period, 1919-28, close to the valuation base of the national product estimates, 1929. Since the relative importance of service and property incomes remains fairly stable over the entire period (cf. Kuznets, "Long-Term Changes," pages 135-137), and since capital increased far more rapidly than labor, the price of a unit of capital service must have fallen over time compared with that of a unit of labor. The choice of a fairly recent year as a base for our relatives in effect means weighting each unit of capital by a relatively low price.

Experiment, however, indicates that choice of base is of minor importance for the question at hand. If we shift the base of the index of resources to 1869-78, the increase of total input between 1869-78 and 1944-53 becomes 44 per cent. If we compare this with the rise of net national product per capita in 1929 prices, the indicated rise in productivity is still much greater, 175 per cent. This calculation, however, overstates the importance of the shift in base. If we shift the base for our resource index to 1869-78, we should also value national product in the prices of that decade. This would, in all likelihood, make the trend of national product steeper and so indicate a greater increase in productivity than the 175 per cent mentioned above. (See Kuznets, "Long-Term Changes," pages 44-47.)

3. This result is surprising in the lopsided importance which it appears to give to productivity increase, and it should be, in a sense, sobering, if not discouraging, to students of economic growth. Since we know little about the causes of productivity increase, the indicated importance of this element may be taken to be some sort of measure of our ignorance about the causes of economic growth in the United States and some sort of indication of where we need to concentrate our attention. Since it will do little good to provide a catalogue of the possible causes of the rise in efficiency, I shall merely add two notes which have to

do with a proper understanding of calculations which resolve the growth of output into the growth of resources and productivity, respectively. They will, I hope, also take some of the edge off my conclusion and serve to put the importance of factor input in somewhat better perspective.

First, although input of resources per capita has not increased much, this does not mean that the increase of resources has not contributed significantly to the rise in output per head. Total input of labor and capital has increased a great deal. Population more than tripled. The nearly constant number of man-hours per capita, therefore, meant a tripling of total man-hours. The tripling of capital per head meant a more than ninefold increase in total capital. The quadrupling of net national product per capita meant a twelvefold rise of total national product. But "the division of labor is limited by the extent of the market." If there is anything to the notion that when raw materials are plentiful resources and output will be connected according to a law of increasing returns to scale, then the great expansion of total resources must have contributed substantially to the increase in productivity.

Second, our calculations of resource inputs are based on usual definitions of labor supply and capital. These conventional methods of measuring resource inputs are faulty and, in the case of this country during the last seventy-five years, probably understate the increase in factor input. We therefore tend to overstate the rise in productivity.

On the side of labor, it is clear that the reduction in the importance of teenagers and old men in the labor force has concentrated employment in the age groups whose output per man is relatively high. It also seems likely that with the urbanization and commercialization of work there has been an increase in the intensity of labor. These changes may perhaps be offset by the augmented importance of women in the labor force. It seems possible, however, that a properly weighted index of man-hour input would have increased significantly over the period even if we leave out of account such matters as improvements in skill and managerial capacity which reflect training and other capital investment. (Cf. Kuznets, "Long-Term Changes," page 77.)

On the side of capital, there is a chronic underestimate of investment and accumulated stock because, for purposes of measurement, we identify capital formation with the net increase of land, structures, durable equipment, commodity stocks, and foreign claims. But underlying this conventional definition of investment is a more fundamental concept which is broader; namely, any use of resources which helps increase our output in future periods. And if we attempt to broaden the operational definition, then a number of additional categories of

expenditures would have to be included, principally those for health, education and training,⁵ and research. These are fairly obvious because one is conscious both of an income motivation and an income effect. But there are other classes of expenditures where motives are mixed or disguised but which have at least the incidental effect of increasing productivity; namely, expenditures for food, clothing, and some recreation. The fact is that, in a thoroughly commercialized economy, disposing of a large surplus above its requirements for minimum consumption, very few expenditures are wholly without the aim and effect of increasing income. If this is so, effective capital formation, broadly conceived, must be sought in certain types of consumption and governmental expenditures as well as in conventional net investment.

The point of these two comments is simply that the relation between the contributions of resource expansion and of productivity growth is more complicated than our conventional measures can reveal. Two morals may be drawn. First, the long-term expansion of the labor supply must be restudied so as to provide a measure of the value of its changing composition as well as its changing size. And the expansion of the capital stock must be restudied to take account of a broader conception of accumulated resources. It may well be that we shall find it inconvenient to merge these additional categories of accumulation with conventional capital. But whatever our terminology, we have to pay close attention to all the ways our society uses its resources to increase its future product.

When all due allowance for the concealed increase in resource expansion has been made, however, there will remain a huge area to be explained as an increase in productivity. Our capital stock of knowledge concerning the organization and technique of production has grown at a phenomenal pace. A portion of this increase—presumably an increasing proportion—is due to an investment of resources in research, education, and the like. This part we may possibly be able to attribute accurately to the input of these resources insofar as we learn to trace the connection between such investment in knowledge and its marginal social contribution, as distinct from those small parts of its value which can be privately appropriated. Beyond this, however, lies the gradual growth of applied knowledge which is, no doubt, the result of human activity, but not of that kind of activity involving costly choice which we think of as economic input. To identify the causes which explain not only the rate at which our opportunities to raise efficiency increase but also the pace at which we take advantage of those opportunities

⁵A properly constructed index of labor input which gave due weight to the higher productivity of more highly educated or trained workers and to differences in vigor would be an alternative way to try to take these inputs into account.

will, no doubt, remain the central problem in both the history and theory of our economic growth. The chief excuse for attempts to separate the measurable contributions of resources from those of productivity is to pose this problem as clearly as possible.

III. *The Trend of the Rate of Growth*

From these measures of the net expansion of output and resources since the Civil War, I turn next to the often asked question: has our rate of growth been slowing up. The retardation of growth in Great Britain and in other leading industrial countries and our own experience in the thirties have made the possibility of retardation a source of widespread anxiety.

Unfortunately, the information now available does not permit us to make a secure answer. The sources of error and bias in national product estimates—already noticed in connection with the measures of expansion—apply with aggravated force when we try to compare rates of growth at different times. We can often guess the direction in which national product estimates are biased, but in most cases we do not now know whether a particular bias affected the figures more strongly in one decade than another. It is clear, for example, that our inability to take consistent account of household production makes the rate of growth of national product too high during a period in which household production was giving way to commercial production. It is probable also that the rate of transfer from home to business changed over time. But did the transfer proceed more rapidly in the last quarter of the nineteenth century than in the second quarter of the twentieth, and by how much? This is the question relevant to changes in the rate of growth. We cannot answer it with any confidence. It is certain, therefore, that any statements about a long tendency in the rate of growth of national product must be treated with the greatest reserve unless the drift is so large and so persistent that no likely combination of biases and errors could account for it. In my judgment, the drift of the figures is not so clear. It is, nevertheless, worth while to review them, partly to check the bases for much current interpretation and speculation and partly because it is interesting to try to allocate the apparent changes in output growth to inputs and productivity.

Taking the figures as they stand, they give some indication of a slowing down in the rate of growth over the course of the eighty-odd years since 1870. To see this, one has to take account not only of the ordinary business cycles, which generally run their course well within a decade, but also of the longer fluctuations which appear in the rate of growth of output. I shall have something more to say about these fluctuations in the next section. A smoothing of the data to eliminate

both types of fluctuations suggests that total net product rose more rapidly during the last quarter of the nineteenth century than it did during the second quarter of the twentieth century. The apparent decline in the rate of growth of product per capita is less pronounced.⁶ (See chart.)

Whatever the showing of the figures, however, it is not at all clear that they are accurate enough for the purpose or, if accurate, that they represent the work of persistent forces in the economy. The very high rate of growth in the last quarter of the nineteenth century reflects an exceptionally high rate of increase during the late seventies and early eighties. If we neglect this apparently remarkable decade and take into account the possibilities of error and bias, the rates of growth afford no significant indication of retardation until we reach the depression of the thirties.⁷ The early figures of rapid growth are the last secure portions of the estimates. If valid, they may reflect a temporary surge of output.⁸

On the other hand, the low rate of growth in the second quarter of the present century is entirely a reflection of the Great Depression. The rates of expansion since 1934 are as high as in any earlier period other than the (possibly exceptional) period in the late seventies and early eighties. They would look still higher on the basis of the Commerce figures than they do on the basis of the Kuznets estimates.

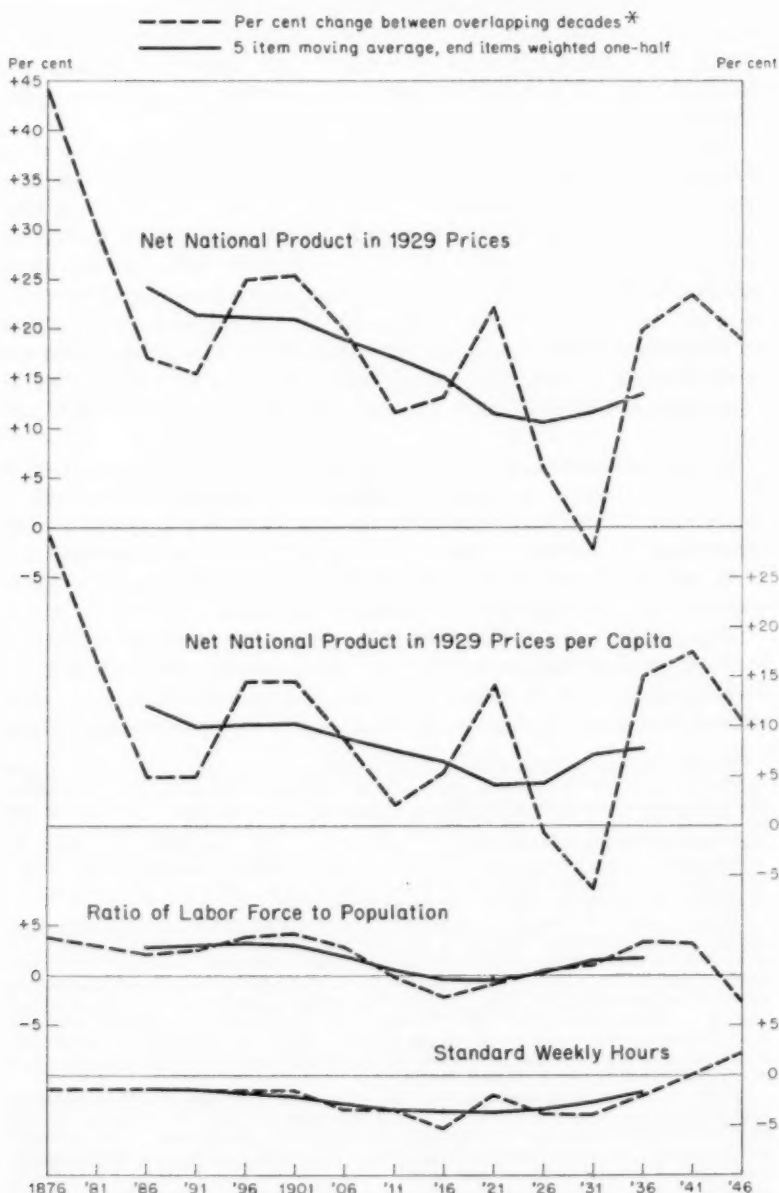
Whether there has been a significant degree of persistent retardation in the growth of national product per capita would, therefore, seem to turn on the answers to two questions presently unanswerable. Do the various biases and weaknesses in the estimates make for an appearance

⁶ Kuznets' original estimates of net national product, which appear in the form of decade averages of annual data for overlapping decades, may be taken to eliminate most of the effects of ordinary business cycles. The same may be said of the rates of change between the overlapping decade averages (essentially rates of change per quinquennium). If we then take five-item moving averages of these rates of change (end items weighted one-half), we average experience for a twenty-year period, which is probably long enough to eliminate most of the effects of the longer fluctuations in the rates of growth. Both the quinquennial rates of change and the moving averages are shown in the chart.

⁷ Compare Arthur F. Burns's conclusions for the period 1870-1930 based upon his study of physical output indexes. While he is highly skeptical about any conclusion which might be reached on the basis of the data available to him, he ventured to write: "... if there has been any decline in the rate of growth in the total physical production of this country, its extent has probably been slight, and it is even mildly probable that the rate of growth may have increased somewhat." (Cf. *Production Trends in the U.S. Since 1870*, page 279.) Since the retardation in the growth of the physical volume of production was almost certainly less than that in population, Burns felt it was still less probable that the growth of per capita output had been drifting downward.

⁸ There is, indeed, some evidence that rates of growth were lower in the immediately preceding decades. After a discussion of W. I. King's older estimates for the period 1850-80, Professor Kuznets comments: "... the only safe comparison one can draw is that per capita real income did show some increase from 1850 to 1880, perhaps as much as 50 per cent or more, perhaps as little as 20 per cent or less." This contrasts with Professor Kuznets' own estimate that per capita real income rose some 50 per cent in the single decade interval 1869-78 to 1879-88. Cf. Kuznets, "Long-Term Changes," p. 240.

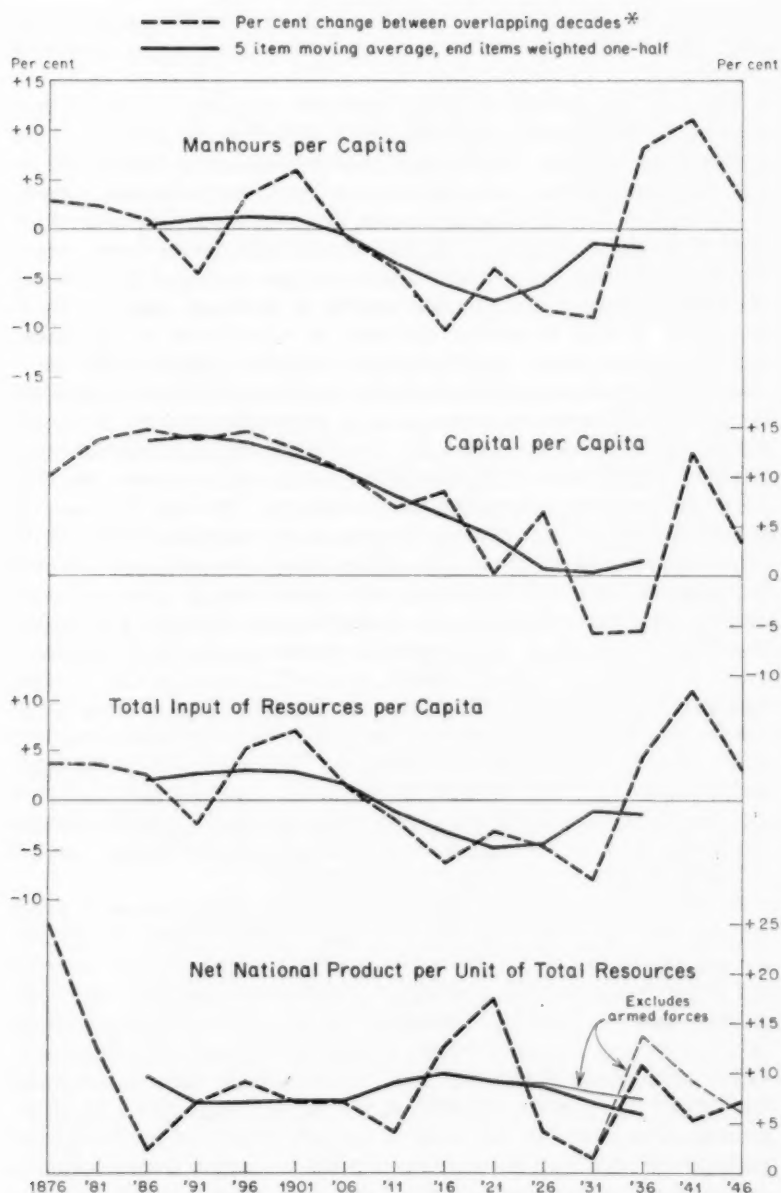
CHART I
Trends in Growth Rates, 1869-1953



* Values are percentage rates of change since preceding overlapping decade, plotted at decade centers.

Sources: See notes to Table 1.

CHART II
Trends in Growth Rates, 1869-1953



* Values are percentage rates of change since preceding overlapping decade, plotted at decade centers.

Sources: See notes to Table I.

of acceleration or retardation? Did the surge of the early years and the deep depression of the latter years represent fortuitous or persistent forces?

Whatever the answers to these important questions of history, it is possible to reach some conclusion with regard to the sources of the apparent retardation. Whatever tendency there may have been for growth of net product per capita to decline is traceable very largely, if not entirely, to a decline in the rate of growth of resources used per head of the population. Until the last two decades, which were years of accelerated growth both of input and output per capita, all the elements of resource input had grown less rapidly or declined more rapidly in later decades than in earlier. The ratio of labor force to population, which increased fairly steadily from 1870 until around 1910, thereafter fell, or grew very little, until the decade of the forties. With the exception of these recent years, hours of work fell at a more rapid rate during the 1900's than during the late 1800's. As a result, man-hours per head rose at a declining rate until the turn of the century and then fell at an increasing pace until the mid-thirties. One may add that the diversion of labor force to military purposes increased over time. So the decline in the rate of growth of civilian man-hours per head was even more pronounced than in that of total man-hours. In the thirties, of course, great unemployment was an aggravating element. The growth of capital per head, as conventionally measured, slowed down drastically. It rose at a constantly slower rate until the end of the twenties, and then declined during the depression. In spite of rapid growth during the last fifteen years, capital per head in the late forties was only a little more plentiful than in the twenties. Until relatively recent years, therefore, every major element of resources made for retardation in the growth of net product per capita. The combined index of resources per capita rose at a declining rate until the early 1900's and then fell at an increasing rate until the middle thirties.

It was these changes in the growth of resources per head which account for most, if not all, the retardation in the growth of net product per capita recorded in the estimates. Productivity per man-hour, on the other hand, has been rising at a fairly constant rate since the eighties, and this trend has dominated the movement of the productivity of all resources. The productivity of capital, taken alone, seemed to be falling until about World War I. It has been rising since, a fact which has helped to maintain the rate of rise in the productivity of all resources. The essential constancy in the rate of rise of productivity is perhaps the most significant single fact which emerges from a review of our economic record since the Civil War.⁹ Whether this reflects an es-

⁹ It is a "fact" heavily qualified by all the errors and biases in the national product

entially unweakened capacity to increase the efficiency of our resources in the future is perhaps the most significant single question which requires an answer.

IV. *Fluctuations in the Rate of Growth*

The trend of the rate of increase of national product, whether constant or slowly declining, is a generalization concerning our growth which abstracts from its fluctuations and pretends to describe only its persistent or underlying movement. But, of course, the growth of output in reality is anything but steady. It rarely runs in the same direction for many months and almost never for even two months at the same rate.

We have learned to think of these alterations of the rate of growth as in part accidental and in part systematic. Aside from seasonal fluctuations, the systematic movement principally identified in the past has been the short-term business cycle either in its minor or major variant. If, however, to reveal the secular trend in output we calculate moving averages for periods long enough to eliminate business cycles (nine-year moving averages, for example), the resulting curve of output for the period since 1870 still reveals striking fluctuations—not in the level of output but in its rate of growth. The curve mounts relatively steeply for a time and then exhibits retardation in a pattern which has repeated itself roughly every twenty years. The same observations

figures and in the estimates of labor input and capital. Moreover, it measures both labor input and capital in a fashion which neglects some increase in labor input due to change in the age composition of the labor force and probably in the intensity of work. It also neglects the fact that a substantial volume of resources has been devoted to the improvement of intangible capital: technology, labor skills, health, and organization. The rate of accumulation of such intangible capital may be increasing. It is a "fact" which is somewhat bolstered by the showing of other over-all measures of productivity. These measures, to which I refer below, are not based on data which are wholly independent of those on which I rely, but they involve some degree of independence and they are each calculated on a somewhat different plan: (1) John W. Kendrick's estimate of "national output per unit of unit of labor and capital combined," 1899-1953, shows no retardation in growth. Its rate of growth since 1919 is somewhat greater than it was in the two earlier decades. (National Bureau of Economic Research, *35th Annual Report*, May, 1955, page 45.) (2) The Twentieth Century Fund estimate of "real private national income per private manhour," 1850-1952, has a trend which suggests a mild degree of acceleration. (Dewhurst and Associates, *op. cit.*, pp. 39-42.) (3) Jacob Schmookler's estimate of gross national product per combined unit of labor and capital, 1869-1938, shows no tendency to retardation in growth after the first decade. (*Op. cit.*, Table 9.) (4) Harold Barger's estimates of productivity per man-hour in commodity production (agriculture, mining, and manufacturing) and distribution, 1869-1949, show either a steady rate of growth or else acceleration, whether taken individually or in combination. Since Barger's estimates are based on indexes of the physical volume of production in the four industrial branches, his figures are more nearly independent of our own than are the other alternatives. Barger's figures take no account of productivity in the service industries other than distribution. It is possible that a productivity index for the remainder of the service trades, if one could be devised, would change the picture. (*Distribution's Place in the American Economy since 1869*, National Bureau of Economic Research, 1955, pp. 37-41.)

may be made if one calculates rates of increase in decade averages of output for overlapping decades (see chart). (Cf. Kuznets, "Long-Term Changes," pages 48-57.) The possibility, therefore, arises that there is a significant cycle in the secular trend of output—meaning by this, movements which persist over a period longer than a business cycle—with an approximate duration of twenty years.¹⁰

In relatively recent times, the hypothesis of a twenty-year growth cycle starts with Kuznets' early work on secular trends in which he suggested the existence of fluctuations of this duration in the rate of growth of production of many individual commodities, in the rate of rise of many prices, and in several other types of time series. (*Secular Trends in Production and Prices*, Houghton Mifflin, 1930, Chapter IV.) The hypothesis was then taken up by Arthur F. Burns in his *Production Trends in the United States Since 1870* (National Bureau of Economic Research, 1934, Chapter V), in which he showed not only that twenty-year growth cycles were characteristic of the output of many commodities but also that the cycle was general in the sense that the growth cycles of different commodities tended to concur in time and that they also appeared in indexes of aggregate industrial production. Burns also found his secular swings in nonagricultural prices, in shares traded, in business failures, and in patents issued. Finally Kuznets in later work has shown that the same swings appear in his long-term estimates of gross and net national product ("Long-Term Changes," pages 48-57), in labor productivity, in population and immigration (with a lag), and in residential construction (with a longer lag).¹¹ Unpublished work by Kuznets and Dorothy S. Thomas carries the subject further, particularly as regards population change, internal migration, construction, and certain financial series. Still others suggest the presence of a similar cycle in foreign countries.¹² Both

¹⁰ Although my discussion is restricted to the twenty-year cycle, I do not mean to suggest that the secular trend of output may not be subject to other significant types of fluctuations. If it is, however, their period is too long to be distinguished clearly from the underlying trend in a review covering some seventy to eighty years.

¹¹ Simon Kuznets and Ernest Rubin, *Immigration and the Foreign Born* (National Bureau of Economic Research, "Occasional Paper 46," 1954), pp. 30-34. The findings of this paper are, to some extent, similar to those of Brinley Thomas.

¹² See Walter Hoffman, *British Industry, 1700-1950* (Oxford: Blackwell, 1955; a translation of the German original published 1940), Part C. Brinley Thomas (*Migration and Economic Growth*, Cambridge, 1954, especially Chaps. VII and VIII) argues that there were twenty-year cycles in the United States (and, to some extent, Canada and Australia) connected by immigration and capital movements to inverted cycles in Great Britain, Sweden, and perhaps Germany. B. Weber and S. J. Handfield-Jones ("Variations in the Rate of Economic Growth in the U.S.A., 1869-1938," *Oxford Economic Papers*, June, 1954, pp. 101-131) attempt to connect the long waves in Kuznets' figures for national product with successive waves of innovation in the application of steam power to industry and transport (1870-82), in the further extension of steam and steel and in the development of new resources (1894-1907), and in electricity, industrial chemicals, and the internal combustion engine (1919-29).

Kuznets and Burns considered their work only exploratory and neither was persuaded that the evidence so far accumulated established the existence of significant recurrence of movement; that is, of true cycles.

Kuznets finds three complete swings in the rate of growth in the period since 1870 and one incomplete swing—a rise beginning 1932 and (tentatively) reaching its peak in 1945.¹³ The variation in the rate of growth between the expansion and contraction phases of the growth cycles is large compared with the average rate of growth itself. For example, in the period 1873-1926, that is, before the huge fluctuations associated with the Great Depression and World War II, the over-all average rate of rise of GNP per worker was about 20 per cent per decade. But the average rate of growth in upswing periods was about five times as rapid as in the downswing periods. The average difference between the rate of growth in the upswing periods and that in the downswing periods was as large as the average rate of growth itself.¹⁴ If we add the last long swing, which covers the Great Depression and the upswing of the forties, the size of the average fluctuation becomes very much greater than the average rate of growth.

The significance of these long swings is not yet established. At least two possibilities are present which would rob the observed fluctuations of most of their meaning. It may be that what we observe are only accidental variations in the severity or duration of ordinary business cycles, which assume the appearance of long swings when their effects are stretched out and smoothed by moving averages or some similar device. And even if it is true that the swings reflect forces which operate over periods longer than business cycles, it may still be true that these forces are predominantly irregular and haphazard.

¹³ The suggested chronology runs as follows:

<i>Trough</i>	<i>Peak</i>
1873	1884
1892	1903
1912	1926
1932	1945

The dates were determined by observing a graph of a nine-year moving average of GNP per worker in 1929 prices and locating the points at which the slope became significantly steeper and flatter. The first and last dates are set only tentatively until the data can be extended far enough backwards and forwards to confirm the position of the inflection point. This chronology was presented in an unpublished memorandum, "Swings in the Rate of Secular Growth," prepared for the Capital Requirements Study of the National Bureau (March, 1952). A similar chronology based on the movement of rates of change of net national product in 1929 prices between overlapping decades appears in "Long-Term Changes," p. 55. An earlier chronology, based on the consensus of many commodity production series, but containing an extra cycle in the decade 1910-20, was presented by A. F. Burns, *op. cit.*, p. 196. Since but few examples have as yet been traced in the American data, neither the average duration of the alleged cycle nor its variability can be considered established.

¹⁴ These are geometric means weighted by the duration of phases. The data are from Kuznets' memorandum, "Swings in the Rate of Secular Growth."

These negative possibilities cannot now be dismissed. Indeed the influence upon the swings so far experienced in this country of substantial irregular forces was patent and undeniable. Thus it seems reasonable to attribute some significant responsibility for the swing beginning around 1873 to the recovery from the Civil War, for the swing beginning around 1912 and continuing through the twenties to World War I, and for the swing beginning in 1932 and continuing into the forties to World War II. It would be impossible to try to review the considerable body of relevant evidence in the short space available to me. For purposes of this discussion, I can simply record my conviction that there is sufficient evidence to make the long-swing hypothesis worthy of closer investigation.¹⁵

If supported by further study, the long-swing hypothesis promises to make a serious contribution to our understanding of economic change. I shall cite three reasons:

First, if it be true that the long swings reflect, in significant degree, the operation of systematic responses to either regular or irregular stimuli, then study of our past growth will best be organized in periods corresponding to the long swings. And a proper understanding of these waves of growth will presuppose an ability to separate the unique from the recurrent forces at work in each period.

¹⁵ Merely to indicate that this position has some tangible basis, one may cite the following:

A. In support of the proposition that the long swings are more than merely an illusory reflection of business cycles: (1) The persistence of long swings in figures arranged to show average levels in identified business cycles (Kuznets, "Swings in the Rate of Secular Growth"). (2) The persistence of long swings in figures for business cycle peaks alone, which thus partially eliminate the effects of long and deep depressions (*ibid.*). (3) The existence of long swings in British data which, at least for 1870-1914, appear to fluctuate inversely to the swings in this country, whereas the normal business cycle relation is positive (B. Thomas, *op. cit.*, Chap. VII). (4) The fact that the period required for the exploitation of major innovations or new territory is certainly longer than the five or six years associated with even major business expansions. This does not account for the twelve or thirteen year long-swing expansions or for twenty-year cycles, but it argues for the presence of unsteady expansive stimuli which carry over from one business cycle to another.

B. In support of the view that the long swings exhibit at least some regular features, in addition to the impact of many irregular circumstances, confident assertion is prevented by lack of study and by the fact that U.S. production data in fair quantity now reach back only to 1860 and, therefore, reveal only three and one-half long swings. Subject to these limitations, there are clear hints of regularities which suggest the presence of an internal structure with some stability. I refer only to certain prominent observations in published sources: (1) Burns's finding that during periods of long-swing expansion, the rates of growth of production of different commodities become increasingly different and that this dispersion of the rates of growth declines in long-swing contractions (*Production Trends*, pp. 242-247). (2) Burns's finding that each period of long-swing expansion is followed by a business cycle depression of great severity, a finding which he tentatively connects with the increasing dispersion in the rate of expansion of individual industries during the upswing (*ibid.*, pp. 247-253). (3) Kuznets' and Rubin's finding ("Immigration and the Foreign Born") confirming B. Thomas' finding (*op. cit.*, Chaps. VII and VIII) concerning the lagged response of immigration to the rate of growth of output, and Kuznets' finding that the rate of increase of population showed a lagged response to economic growth ("Long-Term Changes," p. 55). (4) The common finding (cf. Kuznets and Rubin, *op. cit.*) that there is a lagged response of construction to population growth.

Second, the long swings appear to represent fluctuations in productivity growth and in the increase of manpower and capital to a greater degree than business cycles whose most prominent characteristic is that they are fluctuations in the intensity with which resources are employed. (Before the Great Depression, quinquennial changes in the level of employment were not well correlated with the long swings in the rate of growth of output, nor were the magnitude of the changes in employment percentages comparable in size with those in output. Cf. Kuznets, "Long-Term Changes," Tables 3 and 10. These facts also bear on the question of the independence of the longer swings from business cycles. It is not yet clear, however, that the unemployment figures are sufficiently accurate for the purpose, and the conclusion needs to be checked by further study.) Unless it turns out that fluctuations in the growth of productivity or of resource supply are themselves chiefly governed by business cycle movements, we must anticipate fluctuations in the rate of growth of output even if we succeed in maintaining employment at high levels. Since past fluctuations in the rate of growth were wide relative to its long-term average, projections of output looking forward a decade or two—such as are often made—would need to take into account the current phase of the long swing. This presupposes a capacity to define the recurrent features of long swings—something we cannot do today.

Finally, our past experience with long swings shows that every upswing in the rate of growth has terminated in a depression of great severity. This may, as Burns tentatively suggested (see footnote 10 above), be connected with a tendency for growth to become increasingly unbalanced as the upswing proceeds, presumably leading to a decline of investment in the overexpanded industries. Or a mere slowing down of the rate of growth of output for any reason may lead to a reduction of investment, as one variant of the Harrod-Domar theory suggests. In either case, there is reason to expect that whenever our rate of progress begins to slow down markedly, forces will also be present making for serious depression. Such depressions will not necessarily be experienced in view of the role government may play in counteracting them. But certainly the wisdom and energy of the government will be put to a severe test. The experience with long swings suggests that our liability to severe depression may be a normal part of a swing in the rate of growth, which may itself be due, in part, to recurrent causes. If these could be identified and better understood, our ability to prepare for, and to meet, the emergency of depression would undoubtedly be enhanced.

THE SOCIAL GOALS OF ECONOMIC GROWTH IN THE UNITED STATES

By PAUL T. HOMAN

University of California at Los Angeles

I

Professor Abramovitz' paper brings sharply into view two points: first, the striking record of past economic growth and, second, the reservations one must have about the prospects for future growth at anything like the present rate. The second point, in particular, provides a needed antidote to the enthusiastic and uncritical projections which have recently been flooding the market for popular economic literature.

As a preliminary exercise to my own paper, I got this virus out of my system by making some forward projections, by decades, to the year 2050, applying more or less closely the rates of growth used by Mr. Colm for the decade 1950-60. One may, of course, find it pleasant to contemplate a state of affairs where gross national product is in the multiple trillions and average family income ten times as high as now. I decided, however, that I had no use for such astronomical figures. First of all, I did not believe them. And second, if I did, I could not imagine what life might be like under such circumstances. I therefore geared my thoughts to some aspects of rising income in the earlier and less shockingly affluent future.

Nevertheless, one is justified in assuming that, over the next generation or two, the average income will become strikingly higher. Our President, Professor Black, asked me—proceeding upon this assumption—to examine some of the implications of this development, in terms of social priorities and goals which might be set up as guides. He suggested that, while devoting myself primarily to noneconomic factors, I identify some outstanding economic factors and analyze them briefly. In the end, for lack of time, I found it impossible to do much along this line. Consequently, my remarks will contain only a few hooks upon which to hang some economic discussion in later sessions. Some of these are as follows:

Economic development, we may be sure, will not be a painless approach to Lotus-land. The rapid competitive introduction of new techniques and products will continue to have disturbing consequences. Business risks will be involved. Employments will be undermined. Conflicts will occur over the distribution of the gains. Spending and saving habits, as well as investment opportunities, will undergo unpredictable

changes. Inherent tendencies to instability will have to be fought off. Different segments of the economy will be differently affected by innovations, and serious problems of adjustment between segments will arise. Tendencies toward diminishing returns will set in. To maintain growth, innovations must not only be sufficiently plentiful to offset these tendencies, but, also, the slant of innovation toward laborsaving and capitalsaving effects must be geared to the requirements set by relative scarcities of resources. The impact of development in other countries will have to be absorbed. These problems are real, and not wisps of fog to be blown away by the confident breeze of American optimism.

Further ahead lies a problem that no one seems to be bothering about: a declining rate of growth, or the cessation of growth. Just where, in statistical projections of income per capita, the results become preposterous, no one can say. The stagnation problem cannot, however, be laughed off permanently. Possibly we shall have to face up to the classical problem of the nature of life in the stationary state, or, if not, we shall at the least have to make troublesome institutional adjustments to a much diminished rate of growth.

From all these fascinating topics I must, unfortunately, turn away. Waiving such topics, the terrain which I have staked out lies mainly in the controversial sphere of moral philosophy.

As a point of departure, no one is likely to dispute the beneficial effects of past economic progress in many of its aspects. Above all, if we can assume the success of stabilization policies, the age-long problems of severe poverty and acute economic misery can be regarded as on their way out in the United States. The age-long burden of excessive labor has already been relieved. Relieved of these problems, around which private aspirations and humane programs have centered in the past—and still center in most parts of the world—questions arise as to what can be made of human life in a general state of relative affluence.

II

Moving into the field of moral philosophy, I may as well begin with the distributive question. Nothing in the process of economic development under private enterprise necessarily decreases inequality in the distribution of income. The consequence might, indeed, be the opposite, in the absence of policies to the contrary. Nor is the question simply one of labor income and property income. There appear, for example, to be fairly stable differentials in wage rates as between different fields of employment. The low man on the totem pole seems to stay in about the same relative position. And the economically inept, handicapped,

and unfortunate will remain.

Increases of productivity originate at specific points. The diffusion of benefits through society is mediated through an intricate process, which proceeds with lead and lags, and meets many barriers. Agriculture provides an interesting example. In a certain relative sense, farm production has been in surplus since 1920 except for the war years, and, according to the Paley Report, appears likely to continue so. Migration from farms is only part of the solution. If they are to participate very much in rising income, without specific public support, farm people will have to find other uses for their time than merely producing more for the market.

Such phenomena raise the question of what public policies should be invoked to limit or rectify the inequalities inherent in economic progress. Clearly, the place to begin a redistributive process is with society's more unfortunate members. In relatively poor economies the humanitarian basis is the fundamental one. To the extent that the rough edges of economic hardship disappear, the equalitarian question, pure and simple, comes further to the front.

There are two serious limitations upon equalitarian thinking. One is that, in a competitive enterprise economy, the incentive structure could be destroyed by drastic curtailment of inequality. The other is that inequality may be a necessary condition for cultural progress. At least, it has been so historically. Evolution of cultural patterns proceeds upon the emulative principle, and marked cultural improvements are not likely to originate in mass behavior. I pass the question whether the existing pace-setters for emulation provide good examples.

Some lessening of inequality is possible through taxation, social security measures, minimum wage laws, and public services. Beyond this, there is another down-to-earth policy which government is free to pursue. Much of the inequality in the United States—aside from the effects of differential abilities, inherited wealth, private misfortune, and luck—is due to immobility of labor, ignorance of opportunities, and educational deficiencies and social taboos which limit the range of opportunities. Along all these fronts there is much that can be done. At the upper range, as to property income, government can limit the strength of monopolistic positions, and inherited wealth is vulnerable.

Apart from the obvious pathways just noted, the part that government can play in reducing inequality, consistently with the basic qualities of the enterprise system, is rather limited. Income distribution is mostly determined by the exercise of bargaining power on the part of individuals and groups. In terms of social goals, it is not easy to define a guiding principle to cover the behavior of "power groups" acting in

their own interest. A good many of us have conditioned reflexes which make us react favorably to the general principle of Adam Smith, that some elements in the community are at an economic disadvantage and ought not to be debarred from efforts to diminish it. Beyond this, there is not much of anywhere to go beyond J. M. Clark's principle that, power positions having been sanctioned, those possessing power must develop a sense of social responsibility. It is necessary to keep the process within the realm of games and not of war and within sight of some standard of the public interest. Even this leaves wide open the situation of those least able to act in their own behalf. There still remains the question of how far government should intervene in the market process to underwrite the income of particular producing groups, if at all.

The problem of social justice remains unsolved. Perhaps when we are all much richer than we are, it will not seem quite so formidable or distressing. We accept, and indeed defend, inequality mainly as an adjunct to the private incentive structure. If the growth potential tends to disappear, much of this defense may become bankrupt.

III

Let us turn now to standards of consumption. The essential question is whether, as income rises, the outcome will be better men—with tastes, activities, and relationships which add to the dignity of man—or whether added income will make people victims of a meaningless attempt to satiate appetites and to escape from a pervasive boredom. Such an inquiry starts from a recognition of many satisfactory and hopeful aspects of American life which could conceivably blossom into a higher conception of what constitutes "the good life." At the same time, I must confess, I start from a position of considerable skepticism. At the consumption level, competitive standards, fanned by commercial advertising, carry a sense of deprivation into the higher income levels. Passive behavior and blunting of sensibility rather than active participation and creative activity seem to be dominant. We are in real danger from what J. B. Priestley calls the culture of Admass.

Some thinkers trace the malaise to the inherent nature of the economic system. This makes them socialists of one breed or another. The difficulties are, I think, more deep-seated; and state socialism might easily exacerbate rather than relieve them. We might be trapped in a cultural desert and be the more easily herded into "1984." Recognizing the barriers, one must proceed as if economic progress has a potential contribution to make to "the good life." Otherwise, there would be no point in proceeding at all.

IV

To begin with leisure. As Professor Abramovitz has said, given a certain power to increase productivity, "the rise of output per head will depend . . . to a considerable degree on our individual and social choices concerning the length of our working lives, the participation of different groups in the labor force, and hours of work" (as well as rates of saving). We can enlarge or limit our "take" from technical progress according to the amount of labor input.

It seems quite impossible to define as a social goal any particular amount of leisure. Starting from the working time already achieved, the "right" amount of work is a very personal matter—closely connected with the satisfaction which people find in their work, the interests they have outside their work, and their own marginal assessment of the merits of work, income, and leisure. I find no way of deciding whether youths, women, and elderly people should make up a larger share of the work force, or the contrary; nor of convincing myself that, as a general rule, thirty hours work per week is better than forty hours. Within this context, one may, nevertheless, feel quite sure that longer paid vacations would be desirable from both an individual and social point of view. As to the elderly population, I doubt that there would be any general desire among them to leave the labor force at a much earlier age.

Quite apart from the question of subjective desirability, the length of the work week seems fairly certain to decline as income rises. So long as redundant labor keeps on appearing as an adjunct of changing methods of production—and so long as general instability at times feeds this redundancy—it seems unlikely that union leaders will omit pressure for shorter hours from their demands. Possibly they are already overdoing it in order to have something simple and specific to fight for.

Still, there may be an unintended economic sense in it. The less working time, the fewer materials chewed up, except of course in continuous process industries. If diminishing return is a threat, it can be staved off. Rising income longer might be better than maximum income sooner.

In any case, willy-nilly, people are likely to have more leisure to fill. How they use it then becomes a matter of great social importance. Whatever their satisfaction in their work, people most clearly reveal themselves and the quality of their society by what they do with their own time. Television is a clue to the dreadful possibilities of a situation where a low level of popular taste is pandered to, and further degraded, by commercial interests. A popular television purveyor of pellets of literature recently said that current idealistically conceived programs

of mass education, unmatched in the world's history, may usher in America's greatest era of cultural development. It is a pleasant faith, but not an easy one, to hold.

The possibilities for creative use of leisure are cheering to contemplate—for travel, for home craft, for cultivation of aesthetic tastes, for intellectual improvement, for developing creative talent, for sport and recreation, for group participation in many directions. Nothing, however, assures any of this improvement. Possibly one of the most important features of social policy will be that of sponsoring desirable leisure activities, assuming—what is also problematical—that collective leadership can rise above its source in mass support.

Perhaps before closing the subject of leisure, a note of alarm should be sounded against "gracious living," which appears to be acquiring the position of a supreme goal among women. Operating on competitive standards, it threatens to engross man's income; and, by resort to do-it-yourself, also to engross man's leisure time. Unless it devises for itself creative substitutes, the male element will be the soft victim of female tyranny.

V

The next stage of our inquiry brings us into the presence of consumer sovereignty. While free consumer choice is no doubt, in its way, a good thing and essential to a free system, it in no way gets men to "want better wants," which is the basic problem. When people have more income, is there any way to improve the values and tastes which direct its expenditure?

At the lower levels of income, the question is perhaps not very important. There are still plenty of people who are not well cared for at the purely material level. No one can complain if their increase of income is directed mainly toward improvement in the conventional material amenities—better diet, better clothing, better housing, more recreation. Beyond this level, the conventional necessities will no doubt expand, on the general principle that, as the Frenchman said, "Nothing is so essential as the superfluous." Have we, then, any useful advice to give about the exercise of consumer choice in the market?

The question raises serious philosophical difficulties. Any specifications are highly subjective in character. Nevertheless, one is compelled to the view that there are "higher" wants and that the quality of a civilization is in part tested by the degree to which they are recognized and expressed in effective demand. The central concepts—virtue, manners, taste, beauty, and the like—enter into the Pareto optimum only as parameters—a major weakness of the sovereignty principle.

If one is a thoroughgoing sovereignty addict, there is really nothing

to say. One simply praises God, from whom all blessings flow, for bountiful provision and for the optimal results of individual choice.

Time does not permit me to explore the interesting labyrinths of the question. Much of what I have already said under the heading of "leisure" applies here equally well. Beauty and taste are especially involved, as well as creative use of leisure and the cultural possibilities in the expansion of intangible services. One interesting possibility is that higher income, based on mass production, might, paradoxically, rejuvenate artistic craftsmanship. Margins of income might very well turn toward a demand for things which are not mass produced and have distinctive aesthetic merits. Whether the opportunities for cultural improvement are grasped—or set aside for a proliferation of the vulgar, the meaningless, or the base—depends on what happens to people themselves, not on how much money they have to spend.

VI

Let us turn next to the part which government may play. We encounter at once the same difficulty. Public programs flow from popular aspirations and cannot rise above their source except through some process of inspired political leadership. Nevertheless, they give grounds for somewhat hopeful lines of thought. They may not contribute much to the kind of cultural progress to which I have been referring. But at the level of the more self-regarding traits—which underlie the programs even of the welfare state—they may still effect substantial improvements in the texture of social relationships. By subtracting from rather meaningless margins of private consumption, taxes could amplify public services of great importance.

Among these services, one may take for granted an extension of the social security services. The maintenance of livelihood for the aged, the unemployed, and the victims of chronic misfortune or temporary disaster is deeply rooted in present social policy. Moreover, the more humane care for the handicapped members of society has gone far. In spite of increasing income, the need for such services will continue, and the benefits can be amplified without undue burden upon the rest of society.

The greatly neglected field is surely that of medical care. The universal menace of disease and accident and the millions of personal economies annually disrupted by them may be expected to create strong pressures to remove the hazards. The valid arguments for public participation in medical care are precisely the same as those for old age care. I have no particular notion that the United States should adopt "socialized medicine" on the British plan. But at the minimum, every one should be insured against the major hazards of health; and local

communities should assure the adequacy of hospital and clinical facilities. We have not yet caught up with Bentham's thinking on these points.

Turning to a quite different topic, high upon the agenda of public action must be a thoroughgoing renovation of cities. The large cities are monstrosities. The problem can be broken down into bits and pieces like slum clearance, but the desideratum is an ultimate revolution.

Take the matter of housing. Private enterprise may or may not adequately keep pace with the increase of family units. Even here, much of the result is deplorable from a community viewpoint: cheerless "subtopias" (in an inspired English phrase), monstrous tenements in congested districts, and no convenient access to open spaces. But such growth, even *pari passu* with families, does nothing to dispense with existing congestion. A large increase in income might still leave much of the urban population trapped in undesirable quarters and districts.

Nor is the problem one of housing alone, but one also of the amenities of living in congested areas. New York has a show place in Central Park and a thoroughgoing lack of attractive public squares as breathing-spaces and congregating spots where they are most needed. Chicago has its Lake front backed by incredible dinginess. This is not good enough. Familiarity is a powerful narcotic which deadens us to the appalling neglect of the social interest in public amenities.

Paramount in this neglect is recreational facilities for the young. Public agencies which spend billions on freeways and highways and on schools cannot "afford" positive substitutes for the breeding grounds of juvenile delinquency. It is astonishing how little the public is willing to spend on providing an environment for the healthy development of youthful tastes and activities where it is most needed.

Needed amenities do not stop with congested districts. One need not go all the way with Moore, that beauty is the highest good. But the public neglect of beauty is surely one of the most prevalent and heinous of offenses. An aesthetic impulse in the public life of the United States is not wholly lacking; but it tends to be limited to "spots"—a park, a building, a civic center, zealously guarded from profanation, in solitary and inadequate expiation for the sin of ugliness.

Congestion and ugliness, it may be said, represent growing pains. But where is the principle of reclamation or improvement? They are the ordained end of private speculation in real estate as the sole principle of urban and suburban development. To be rid of them, a public goal must be popularized to make cities fit to live in, to make the urban and suburban scene fit to look at, and to preserve both the superb natural beauty of the country and the opportunity for simple pleasures

in the "open spaces." If it is ever done, it will take a great deal of public money and a great deal of public interference with the rights of private property. It might even call for an amendment to the constitution. It will certainly require a revolutionary change in popular attitudes.

Again, turn to urban transportation. Present policies seem designed to erode the very possibility of any sensible solution conducive to the public convenience.

Or take the case of education. At the most obvious levels, it is a neglected function, always in arrears as to facilities and the recruiting of an adequate and competent teaching force. At a more fundamental level, the question is not one of financial support, but whether the quality and content of instruction will be well designed to produce better men. One has grounds for skepticism. Mass education certainly brings some rudiments of a cultural heritage to more people than ever before. At the same time, it appears, reciprocally, to become increasingly animated by a pragmatic materialism. At the upper levels, the disease emerges in the watering-down of the cultural heritage, in the triumph of vocationalism, and in the new snobbery of the "college degree" for those who, lacking any intellectual interest, require this passport to economic preferment. All this no doubt reflects correctly the state of a materialistic civilization. Whether it contains the seed of cultural improvement, everyone may do his own guessing.

I shall not further catalogue ways in which public action could contribute to social well-being. The moral is sufficiently clear, that collective action might well engross a substantial portion of an enlarged capacity to produce.

VII

Let us turn to another subject: the scheme of human relationships in the productive process, which determine for most working people much of their attitude toward society and of their satisfaction in living. Modern economic society requires a severely ordered industrial discipline. The necessity arises from the machine, not from the nature of the economic system. The terms of this discipline are crucial. The old relation of master and servant has only vestigial remnants. The autocratic methods of management which bred bitterness and strife are on the way out. Benevolent paternalism is equally in retreat. Industrial relations have arrived at an uneasy half-way station where workers are able to have a substantial say as to the terms of their employment. One consequence is that industrial discipline is based less on fear and more on a sense of mutual interest and participation. This is sheer social gain—an exhibition of the capacity of the system to evolve some work-

able compromise among the various incentive fields, all of which have to be satisfied in order to increase the productive efficiency of the system. There is, nevertheless, still a strong sense of "we" and "they." The lines of progress require a more nearly common view by labor and management of the requirements of the situation within which they must compose their differences, and public policies which modify the grosser elements of strife and the grosser inequities embedded in the rights to income. The rapid growth of income provides a favorable environment within which to work out these adjustments and to approximate more closely the co-operative ideal.

VIII

A final topic deserves attention, but time prevents developing it. The United States is part of a larger world. Its rate of development sets it increasingly apart—making it serve both as an object of envy and as a source of hope to other peoples. The country is provided with an unparalleled opportunity to assist in the development of other areas—possibly to our own advantage or, if not, at least with little sacrifice. If from narrowness of vision and lack of generosity we hug our increasing prosperity close to our own breasts—foregoing the wider opportunity to advance peace and well-being—it will be one of the more tragic passages in the history of the human race.

IX

My paper has, I am afraid, conveyed little breathless anticipation of the glory of life in the United States of tomorrow—however prosperous it may become. The traits of human nature which might flower in a state of universal plenty are untested. At best, one need not look for Utopia. The human passions are persistent, and will see to that. Moreover, competitive capitalism itself engenders aspirations and behavior that one would not ideally desire. Unless, of course, one finds the meaning of life in competitive economic striving—as many appear to do.

At the end of an inquiry like this, one comes back to the sentiment which stands as the foundation of the American vision: faith in the dignity and worth of the individual human person—a sentiment rooted in the history of Christendom and now spreading itself throughout the world. The content of this vision is spiritual and humane, generating the sense of brotherhood and opening the way to fulfillment of the nobler traits with which man is endowed. Our economic apparatus is not well designed to keep this vision in clear focus. It is, however, in process of providing a new frontier of economic well-being from which to conduct new explorations into the potentialities of the human spirit.

Whether in these circumstances the "human person" has the capacity to grow in "dignity and worth" remains to be demonstrated.

In deference to my surroundings, let me end upon an economic note and in a long-run vein. It appears to me, as I suggested earlier, that the curve of growth is bound to flatten off. As this occurs, the economic apparatus of the country—geared to innovation, enterprise, and rapid growth—will become increasingly obsolete. The most critical economic goals ahead are therefore likely to be institutional in character, testing our ability to reshape our scheme of co-operative working relationships amicably, sensibly, and with due regard to the higher aspirations of man.

DISCUSSION

WILLIAM J. FELLNER: In the brief time at my disposal, I would like to comment mainly on one aspect of the problem with which the main papers of this session are concerned. Professor Homan agreed that this aspect deserves further consideration, and his paper includes a reference to the question to which I shall presently turn. The same question has stayed more in the background of Professor Abramovitz' paper.

What I would like to stress here is that the technological-organizational progress to which we all rightly attribute much of the past growth—and on which we base our future hopes—must have satisfied and must continue to satisfy certain specific conditions. It is not enough that progress (innovational activity) should be sufficiently plentiful. It is also necessary that its relative laborsaving and capitalsaving impacts should be distributed more or less in accordance with relative resource scarcities.

There exist indications that in the United States and probably also in some other countries output per unit of capital (the average productivity of capital) has shown no tendency to decline. The secular tendency in output per unit of capital is perhaps more toward an increase, even though the stock of capital has been rising in a higher proportion than the supply of the other factors of production. However, such trends—trends in the average productivity of the various factors—are indicators merely of the over-all strength or over-all sufficiency of technological-organizational advance. They are no indicators of the relative laborsaving or capitalsaving properties of progress.

For example, we know that if in the long run the average product of capital has been mildly rising, the average product of the other factors (of the less rapidly growing factors) must have been rising more appreciably. From this we know that progress has been sufficiently plentiful to leave room for favorable trends in rates of return to investors as well as for favorable trends in real wage rates. Output has been growing per unit of all resource inputs; hence there was room for a rise in all factor prices. But this does not in itself decide whether trends have actually been favorable for all factor prices; that is, for the services of workers and of investors alike. The answer depends also on the effect of the progress on distributive shares.

Take a simplified example which, while not wholly realistic, is not too unrealistic for illustration. Assume that in a fifty-year period output per unit of capital rises by 10 per cent and output per unit of the less rapidly growing labor input rises by 100 per cent. If the nature of the innovations to which these average-productivity trends are attributable leaves the relative income distribution unchanged, rates of return to investors will have risen by 10 per cent and wage rates will have risen by 100 per cent. This would imply that the laborsaving and capitalsaving impacts of the innovations were distributed in such a way that relative shares were held unchanged even though there has developed a growing scarcity of labor relative to capital. But if the innovations are too capitalsaving (insufficiently laborsaving), then distributive

shares can change so strongly against capital that rates of return to investors fall appreciably, growth diminishes, and unemployment may possibly develop, even though the average productivity of capital is rising to some extent. On the other hand, if innovations are too laborsaving (insufficiently capital-saving), then distributive shares can change so strongly against labor that wage trends become very unfavorable or, alternatively, another type of unemployment develops, even though the average productivity of labor is rising very substantially.

In the Western world, neither of these two dangers has materialized, although the more advanced Western nations seem to have been moving in an area that lies near the danger point of insufficient laborsaving. This is disclosed by the fact that, coupled with a steep uptrend in real wage rates, we seem to have had a very mild secular tendency toward declining rates of return to investors, even before taxes. However, we presumably have had no powerful or consistent tendency in this direction, and the statistical materials are not good enough for strong statements on mild tendencies. By and large, the character of improvements—their relative laborsaving and capitalsaving impact—seems to have adjusted to the relative resource scarcities in the system (although perhaps not quite as completely as would have been needed to prevent even a mild secular decline in rates of return to investors while real wage rates were rising steeply). As long as we stay merely near the danger point of insufficient laborsaving, without actually reaching the danger point, the workability of the social system is thereby enhanced. The wage trend becomes all the more favorable, and secular trends in profit rates do not become so unfavorable as to interfere with the growth process.

It seems to me that the problem to which these brief comments relate has all along received less attention than it deserves, and that some of Professor Homan's and Professor Abramovitz' very interesting observations lend themselves well to being linked to this problem. For example, the trend toward services which may be expected along the projected future growth path will pose rather specific requirements in regard to relative laborsaving and capital-saving. With present methods of producing these services, the rate of return on investment (marginal productivity of capital) declines rapidly in this sector of the economy; that is to say, the development of the service industries calls for particularly laborsaving improvements. Professor Homan expresses merely qualified optimism in our ability to continue at an unchanging proportionate rate of growth for many decades. I would like to suggest that if we disregard problems of foreign and military policy, the answer depends very much on our continued ability to adjust the character of progress to relative resource scarcities. It may well be that the shifts in the composition of output will be such as to call for relatively greater laborsaving effects (relatively smaller capitalsaving effects) of innovations.

Here these comments touch on a cultural problem to which Homan rightly attributes great importance. The problem is that of the future ability of our economies to satisfy demands with cultural and aesthetic content. This depends in large measure on how the quality of certain services will be influenced by increasingly laborsaving (capital-intensive) methods of producing them. I do not believe that the question should be answered by a sweeping pessimistic

statement. Still, when we are looking toward a happy future in which culturally and aesthetically significant services will play a more prominent role, it is reasonable to place education, in a broad sense, in the center of the area about which we speak; and the prospect of a relative depersonalization (mechanization) of the educational process raises some uncomfortable questions.

Professor Abramovitz, too, places much emphasis on technological progress. I must admit, however, that I do not quite follow his method of estimating the relative importance of technological progress versus that of resource acquisitions. If over a longer period output has risen in roughly the same proportion as the capital stock (or perhaps in a slightly higher proportion), and if output has risen in a distinctly higher proportion than the other resource inputs, then it is legitimate to conclude that part of the result is a consequence of technological-organizational progress. But not even in the first approximation do I believe it to be legitimate to argue that, aside from technological-organizational progress, output would have risen in the proportion in which some weighted average of the resource inputs has. Yet Abramovitz' estimates seem to be based on this idea. The idea implies very specific assumptions concerning the shape of the relevant production functions, and the estimate could be accepted only along with convincing estimates of production functions.

However, I believe that we have good reason to assume that technological-organizational advance has recently been more rapid than in past periods for which we have data. Recently the percentage of output going into net capital formation seems to have been on the low side, as compared to past periods, while the percentage rate of growth of output has been high. In other words, the output-increment per unit of new capital formation is high as compared to what it was in past periods. At present this could scarcely be explained by an unusually high rate of increase in the supply of resources co-operating with capital. An increased rate of technological-organizational progress provides the most plausible explanation.

The same conclusion can be derived also from Professor Abramovitz' analysis. Abramovitz feels rightly, I think, that statements concerning a slowing of the proportionate rate of growth of American output are of dubious validity. Considering the diminished proportionate rate of acquiring new resources, we must be faced here with an increased rate of technological-organizational progress. The accelerated rate of technological-organizational advance may, in turn, have a good deal to do with more systematic research activities both of industry and of the government and with the spread of the "scientific spirit" in industrial practice.

FREDERICK V. WAUGH and JAMES P. CAVIN: The series of conferences on economic growth is off to an excellent start with these two papers. The contributions of Abramovitz and Homan are very different from one another. Abramovitz has given us a scholarly review of trends in output since 1870. Homan has discussed the broad philosophy of economic growth, with many interesting and provocative observations.

These papers raise a whole series of points that would be most interesting to discuss, ranging from the validity of the long-swing hypothesis to the role of leisure in economic progress. Our comments, however, will be limited to two

main points: the question of economic stagnation, and the future prospects for agriculture.

Mr. Abramovitz points out that the best available statistics suggest a slowing down in the rate of economic growth in the United States. He properly points out that this apparent tendency may be due to errors in the data. However, Mr. Homan says, "the stagnation problem cannot be laughed off permanently."

Economists worried a good deal about the stagnation problem in the thirties. Since then most of us have forgotten about it. Probably this is because we have experienced an almost continuous period of business boom and inflation. But perhaps World War II and the postwar programs have hidden a basic trend toward a slowing up in the rate of growth. This trend could reassert itself if and when a real peace is established and when major countries actually reduce defense spending.

True, we have now some built-in stabilizers such as social security, certain features of the income tax, and farm price supports. These could help avoid severe fluctuations, but probably would have little effect on long-term trends.

As we see it, there is nothing inevitable about stagnation. Neither is there anything inevitable about continued prosperity. The economic trends of the future, as in the past, will doubtless depend upon policies followed by private enterprise and by government. One of the main questions which may confront us within the next decade or so is what will replace present huge government expenditures for defense, if they are cut sharply. We think the answer is in Homan's paper. We badly need more and better schools, hospitals, roads, recreation facilities, and many other things which have been postponed for budgetary reasons. These things not only can stimulate economic expansion, but they can also help get a better distribution of income. We reluctantly agree with Homan that some degree of income inequality is essential to competitive free enterprise and to cultural progress. This presents us with a real dilemma. Somehow we must compromise between welfare and economic growth. Certainly our sole object is not to maximize the gross national product. One of our main objects must be to help all groups of our people to attain a satisfactory level of living. This probably means more government services in the future.

Since we both work in the Department of Agriculture, we are particularly interested in a point made both by Abramovitz and Homan. Both authors note the long-continued drop in the relative importance of agriculture. Homan especially takes a dim view of future agricultural prospects in the United States. He says that "farm production has been in surplus since 1920, except for the war years." He also says, "If they are to participate much in rising income, farm people have to find other uses for their time than merely producing more for the market." Recent agricultural trends are indeed discouraging. During the past four years most of the economy has been booming, but farmers' prices and incomes have been falling sharply. A month ago we held our Annual Agricultural Outlook Conference. The federal and state agricultural economists agreed that we must expect a further drop in farmers' prices and incomes in 1956. This is in spite of expectations that the general business boom will continue.

This situation raises two questions: (1) Is agriculture doomed to be a depressed industry? (2) Will a depressed agriculture threaten prosperity in the rest of the economy? We do not have the answers to these questions, but propose to discuss them very briefly.

We expect some further decline in farm population. Not only do we expect the percentage of persons engaged in agriculture to be lower in the future, but we expect some further drop in the absolute number of persons on farms. This is due to a rapid rise in agricultural productivity and the expectation that this rise will continue. We do not, however, expect the drop to be anywhere nearly so sharp as has been suggested by Colin Clark. A moderate further decline in farm population is nothing to be alarmed about if farm people can find profitable employment in industry. The migration from farms is a long, historical process and is in line with economic progress.

As we see it, the problem is how to make adjustments in farm population and in farm output without forcing people off the farms by unbearably low incomes. Farm prices and incomes are now probably below the level we ought to consider as a long-term normal for periods of peacetime prosperity. In November, 1955, for example, the ratio of prices received by farmers to those of prices paid stood at 81. This is lower than has occurred in other prosperous periods.

A sharp drop in farm prices and incomes since 1951 has not yet interfered with the business boom. Does this mean that the rest of the economy is insulated from agriculture so that nonfarmers can continue to prosper indefinitely while agriculture suffers a continuous depression? We will not insult this sophisticated audience of economists by arguing that farm prosperity or depression is always a cause of general prosperity or depression. But we do believe that if farmers' prices and incomes should drop much longer and much further, there would have to be some repercussions on the rest of the economy. It has not done so yet because farmers are still spending about as much as they did in 1951. However, farmers' debts are rising. If farm income should drop much more, they would have to curtail expenditures somewhat. Continued decline in agriculture would lead to smaller purchases of farm machinery, fertilizer, and many other important industrial goods.

This is not the place for us to present a detailed farm program aimed at keeping farmers reasonably prosperous. We will only say that we think a farm program can be devised that will contribute to economic growth, and that one of the elements of this program is some stabilization for farm prices and incomes. This is a problem which must be of concern to all of us whether we live on farms or in the cities.

DAVID McCORD WRIGHT: Ever since the time of John Stuart Mill, if not earlier, men, as Dr. Homan implies, have looked at the spectacle of economic growth, figured where the trends were leading them, and then asked: How can this possibly keep on? What can we do with it all? Again, honest economists for at least a century have admitted that increased output could be merely increased garbage, and stressed the need for moral and aesthetic standards. I have discussed these problems at length in my books: the technical

question of economic "glut" in, for example, my *Economics of Disturbance* and the other questions in my *Democracy and Progress*. There does not seem much point in rehashing the analysis here in the short time given me. Furthermore, toward the end of Dr. Homan's paper there comes a more ominous note. He speaks of our growth, not merely as a "source of hope," but also as an "object of envy" to the rest of the world. And in consequence, I should like to use my time, instead, to talk about the role of this "hope" and this "envy." For I suggest that one overriding priority of economic growth is survival, and I submit that the real shadow clouding our roseate growth forecasts today is not the mythical, ever deferred danger of capital "saturation," but a "real and present danger" of general assault!

American opinion still seems to me to think of the problem too much in terms of mere military defense. Strangely enough this is a very impractical outlook. For I submit that one of the most important things shown by history is the power of ideas to corrode and destroy mere strength. The future lies not merely with those who have the most arms but with those who most convince the world that hope and justice are on their side. Now it is in this connection that I suggest a high priority for one special intellectual activity accompanying the growth process—that activity lies in explaining to the rest of the world and in understanding for ourselves the sources of American development. Is it mere exploitation? Are we mere parasites on the rest of the world? Clearly the state of our international good will largely depends on the answer to this problem. The envy of the rest of the world obviously makes understanding difficult. But what about its hope? Is the hope of the rest of the world to be one of growing wealthy by understanding the sources of our wealth and emulating them? Or is it to be a hope of getting wealthy by plundering us? I do not think the average American and even the average American intellectual has any adequate appreciation of how fundamentally alone we are and, what is worse, how superficial are the means we have used to overcome this aloneness and to win friendship and understanding.

We read in the papers of the Russian "traveling circus"—Khrushchev *et al.*—and we think it is funny. We cannot believe that anyone would take such transparent "double-speak" seriously, or that there is anyone so ignorant as not to see how transparently false are the communist claims to "scientific" objectivity. Well, we are wrong. A large part of the rest of the world does not think the circus is funny—does not think it is a circus at all. And I can assure you that in Asia, in Africa, in large parts of Europe, and even in the Western Hemisphere plenty of people take Marxian social "science" absolutely literally. Indeed to many young Asiatics Marxism *is* science.

But to those who accept the elements of Marxian science—and note that I say Marxian and not just communist—a paper like Dr. Homan's would seem almost ridiculously beside the point. For they would be convinced that all the points on which he expresses some misgiving could be cleared up by abolishing forcibly (or, if they are "revisionists," peaceably) the search for surplus values; in other words, the profit motive. To them this is the sole or nearly sole source of all cultural deterioration. And anything else is mere surface treatment.

Again, to such people, the ten sessions on economic growth of this program would seem incredibly superficial, for they would find no discussion—in Marxian terms—of the problems they consider basic.

Finally, how can we hope, as Professor Homan implies (albeit with a healthy and justified skepticism), to win friends by just giving away wealth, if we allow people to continue to believe that the wealth really belongs to them anyhow? By Marxian (not just communist) analysis, the wealth of the United States is only the result of the “redistributed” fund of surplus value created by the “living labor” of the primitive peoples. Yet, if that be the case, we have no right to it anyhow and what we give is only a small part of what we owe. Yet we do very little in our propaganda really to meet this vital, central, scientific issue. But as long as we do not, all we say and all we do is to a large and crucial part of the world mere irrelevant, even if well-intentioned, drivel. The Marxian claim to be the result of pure science is especially impressive to many young Asians and Africans. For to them “science” in capital letters is the big thing we have had and they have not.

Seldom has so great an opportunity been so badly mangled. For nothing is easier to a man who really understands and believes in the fundamentals of American capitalist democracy, than to knock down the scientific pretensions of the Marxists. In the few occasions in which I have succeeded in getting them to debate, nothing has been easier. Why do we practically never try it? I suggest that it is time for us, all over the world, to meet the Marxians on their own scientific ground and to debunk their scientific claims. Not, mind you, on minor matters—the inevitability of revolution, or the possibility of putting across this or that reform—but on the basic morality and understanding of the capitalist process. Is the profit motive the source of most evil? Is the theory of surplus value true? Will equal money income plus social planning avoid pressure groups, neurosis, and insecurity? How do we really stand on all these points? Do we believe in our own system or do we not? It is time to “accentuate the positive” and to answer rather than to suppress.

As a brief contribution to debunking the picture of the communist as a persecuted scientist and lover of pure wisdom, let me quote a passage from a book the publishers of which, for some mysterious reason, will not permit to be sold in the U.S.A. I refer to Bob Darke, *The Communist Technique in Britain*, written by an ex-communist and published by Penguin (1952, page 57):

In the Fire Brigades Union during the war I was part of a conspiracy that removed eight national officers who stood in the way of the Communist march to full control.

Most of them we wiped out of the way by breaking down their health with overwork. We contributed handsomely to the eulogies that marked their retirement from office. Where the rest fought back we turned on a whispering campaign, accusations of immoderate drinking, of gambling and immorality, of a personal or domestic life that reflected “on his standing as a union officer.”

If his personal life was so blameless that not even the most credulous would believe lies about it, then we rumoured that he was in truck with the bosses, that he was a Tory sympathizer.

And if that were not successful we whispered that he was a secret Communist.

So much for the role of misguided scientist so often played. But the real way to meet the challenge is on its own ground, and to say: This calls itself science. Very well, let us discuss it scientifically.

ECONOMIC GROWTH II. THE PRODUCTION AND CONSUMPTION ECONOMICS OF ECONOMIC GROWTH

THE PRODUCTION ECONOMICS OF GROWTH

By W. DUANE EVANS
Bureau of Labor Statistics

The preparation of this paper has been very materially aided by the appearance this year of the new edition of *America's Needs and Resources*, by J. Frederic Dewhurst and associates (Twentieth Century Fund, 1955). This great review—an impossible task for one man and a remarkable achievement for any number—contains immense amounts of statistical material and thoughtful analysis bearing on the economics of production and growth in the United States—past, present, and future. I wish to express my indebtedness to its authors and also to refer my audience to the volume for details on many topics and problems both mentioned in and omitted from this paper.

The most significant and obvious statement to be made about aggregate production in the United States is that it has increased greatly in the last fifty years. To put this deliberately in general terms and to avoid discussion about whether deflated GNP, national income, or some other measure would constitute the best basis for comparison, we may assert that total production in the United States has approximately quadrupled since the turn of the century.¹

The rate of increase in this period has been irregular and interrupted by two world wars, a long depression, and other less drastic occurrences. The record of these is too well known to require repetition.

When we abstract from these irregularities to consider the average rate of growth, we recall Burns's conclusion of 1934: "If there has been any decline in the rate of growth in the total physical production of this country, its extent has probably been slight, and it is even mildly probable that the rate of growth may have been increasing somewhat." (*Op. cit.*, page 279.) Nearly twenty years later, Woytinsky ex-

¹ See Dewhurst *et al.*, *op. cit.*, pp. 40-41 and appendix tables; John W. Kendrick, "National Productivity and Its Long-Term Projection," in Vol. XVI, *Studies in Income and Wealth* (N.B.E.R., 1954), pp. 67-104; Staff, Joint Committee on the Economic Report, *Potential Economic Growth of the United States during the next Decade* (G.P.O., 1954); W. S. Woytinsky *et al.*, *Employment and Wages in the United States* (Twentieth Century Fund, 1953), pp. 27-45; George J. Stigler, *Trends in Output and Employment* (N.B.E.R., 1947); Arthur F. Burns, *Production Trends in the United States Since 1870* (N.B.E.R., 1934), pp. 253-281.

presses a very similar judgment: "... within the limited span of our experience, covering sixty to ninety years, there has been no retardation in the economic growth of the United States, and there is no indication that progress will level off in coming years" (*op. cit.*, page 34). There seems no reason to disagree with the conclusion; nevertheless, most students today would probably attach a slightly lower numerical value to the long-run rate of increase in production growth than earlier analysts. At the same time, they might attribute the difference as readily to more complete and longer period statistical evidence, to the war and depression interruptions, or to the increasing relative importance of sectors in the economy where production can be measured with difficulty if at all, as to any change in the fundamental rate of growth.

As we turn to consider changes in composition of output within the total, we might expect to gain considerable insight from input-output tables. Unfortunately the available tables will hardly support such an inquiry. To quote Wassily Leontief: "The first two [for the years 1919 and 1929], results of single-handed purely exploratory efforts, are very rough indeed, and even the last [for 1939], although much more comprehensive in its scope, can hardly be considered as representing more than a first approximation to a thorough statistical job. . . ." (*The Structure of the American Economy*, Oxford, 1951, page 216.) The relatively detailed tables available for the year 1947, if not lost because of the fugitive nature of their publication, will be of great interest to future economic historians, but they are of little comparative significance now.

Changes in the composition of total production in the economy over the period 1900 to 1950 are difficult to appraise, and no one, to my knowledge, has carried out a comprehensive review. Impressions can be pieced together, however, from a number of sources, principally those mentioned previously. These, given in very general terms, will perhaps suffice here.

As one would expect, most of the major sectors of the production system shared in the general growth, but not all of them equally. Agricultural production in the last half century, for example, appears to have grown at substantially less than the over-all rate. At the same time, it has been less influenced by cyclical variations. Mining seems to have had a rate of growth somewhat above the general average until some time between 1930 and 1940, after which the rate declined. This may be attributed in considerable measure to the increasing use of petroleum and natural gas as fuels in place of bituminous coal.

Manufacturing appears to have maintained a growth rate somewhat above the average over the full period, and within manufacturing durable and nondurable goods have kept approximately the same rela-

tive positions. These subgroups were, of course, affected in different degree by cyclical influences. It is difficult to judge the relative rate of growth in construction. It has probably been near the average, but the extreme cyclical fluctuations exhibited by this sector make a statement about the average nearly meaningless.

The rate of growth in transportation, considered as an industry, requires consideration of its components. The over-all tonnage of materials and goods transported within the economy seems to have increased at something less than the over-all rate of growth in production. This is to be expected in an economy in which a declining proportion of total activity is related to the handling of physical goods. Passenger traffic carried by the transportation industry has also fallen behind the general rate of increase, principally because of increasing use of personal automobiles. The railroad industry, which in the first two decades of the century maintained a rate of increase above the average, showed substantial retardation after 1920 as trucks, buses, airlines, and pipelines were increasingly used.

Two small sectors—communications and utilities—have probably had an average or above-average rate of growth. Especially notable within this group is the tremendous expansion in the production of electricity, and more recently of natural gas.

It is difficult to frame a definition of production in reasonably concrete terms for such remaining important sectors of the economy as distribution, services of all kinds, and government. It is perhaps better to consider these groups in a different way, noting here only that some components, such as education and health and medical care activities, have surely grown very rapidly.

Another way to look at the question of relative changes in the composition of total output is to examine changes in the percentage distribution of manpower use among the major industry divisions. (See Dewhurst, *et al.*, *op. cit.*, page 732.) Keeping in mind that total employment more than doubled in the period, the most striking change between 1900 and 1950 is the reduction in the use of manpower by agriculture, forestry, and fishing from 38 per cent of the total to about 12 per cent. Mining likewise fell from about 2.6 to 1.4 per cent of the total. Since it is known that production rose in agriculture and mining, the absolute reduction in their use of labor connotes a substantial increase in productivity, especially noticeable for agriculture after 1940.

During the period considered, the proportion of all workers used by construction showed little trend one way or the other, remaining in the neighborhood of 6 to 7 per cent. Manufacturing increased its proportion, but irregularly, from 22 to 26 per cent. Rough productivity considerations will probably indicate that construction at least main-

tained and manufacturing improved its position in total output. Transportation, communications, and public utilities as a group showed a slight increase in labor use from 1900 to 1920 and a minor decline in later years, accounting in 1950 for a little less than 9 per cent of the total.

Personal and domestic service showed little trend in the period, fluctuating around 10 per cent. The remaining four groups each more than doubled their proportion of total labor use. Trade went from 8.6 to 18 per cent; finance, insurance, and real estate from 1.1 to 3.2 per cent; professional services from 2.5 to 6.3 per cent; and government from 2.8 to 7.9 per cent. (The latter figures do not agree very well with Parkinson's law. See the *Economist*, London, November 19, 1955). For the four groups together the increase was from 15 to more than 35 per cent. Any consideration of productivity changes for these sectors must be very crude, but even the most modest assumptions lead to the conclusion that output in these areas at mid-century constituted a greater proportion of the total than at the beginning, and hence that the rate of growth for these sectors was well above the average.

The above may be summarized in Colin Clark's terminology. Production has continued to grow in the primary industries of the U.S. economy, but at much less than the average rate. Production in the secondary industries has shown greater growth, and tertiary activities have expanded most of all.

In seeking to account for the substantial over-all growth in output and for the change in its composition, it may be helpful to examine the relationship between production and the major input factors. It is convenient to begin with labor.

Since total output for the economy has increased substantially more than the labor force in the last half century (in the neighborhood of twice as much), it is clear that output per unit of labor input, at least on the average, has increased. In terms of deflated national income per man-hour for the whole economy, Dewhurst's figures (*op. cit.*, page 40) would place the rate of increase in the period 1900 to 1950 at just under 2 per cent per year. Kendrick's estimates (*op. cit.*, page 87), which are in terms of deflated gross private product per man-hour in the period 1909 to 1950, would put it at just over 2 per cent per year. If some allowance were made for the influence of the major depression of the thirties, the rate would be somewhat higher. The full effects of the increase in output per man-hour have not been realized in higher output since in the half century there has been a reduction of about one-third in average man-hours expended per worker, offset in part by a small increase in the average labor force participation rate.

A similar picture, but with varying details, is seen when we examine

separately those major production sectors for which information is available. Output in terms of labor input for agriculture increased steadily but slowly until about 1935. A sharply higher rate thereafter seems to be associated with greater utilization of mechanized equipment on farms as well as many other improvements. (See, e.g., Dewhurst, *op. cit.*, page 1080 and pages 783-812.) Manufacturing appears to have maintained a rate of improvement in output per man-hour above the general average during this century. (U.S. Department of Labor, BLS Report No. 100, December, 1955.) Mining approximately kept pace with manufacturing until 1940 but lagged thereafter. The converse was true of railroads. Electric light and power output per man-hour increased at far above the average rate from the twenties on. (Bureau of Labor Statistics, summarized in Dewhurst, *op. cit.*, page 740.)

The above covers the main sectors of the economy where some reasonable physical output measure is available for comparison with labor input. It is much more difficult to reach equivalent conclusions for other sectors of the economy. However, in these it is easy to observe successive and numerous improvements which lead to reduced requirements for labor in relation to the task to be accomplished. Woytinsky comments on this as follows:

At first, the contention that productivity of labor in service industries has kept pace with productivity of factory labor seems contrary to the well-known contrast between the use of mechanical power in manufacturing and transportation and the lack of mechanization in most of the service industries. There is, however, ample evidence of the increase in output per worker in services, especially professional services. . . . To sum up, there is no evidence that the long-range trend in output per worker differs substantially for service industries and industries in which output can be directly measured in physical units. (*Op. cit.*, page 35.)

Without attempting undue precision, we may conclude that the amount of labor needed for a stated output has steadily declined and continues to decline in the economy as a whole and very probably in all major segments of it as well.

The generally upward trend in output per man-hour is well known. What is perhaps not so widely known or accepted is that, at least since 1920, output per unit of capital employed has tended to move upwards as well. Colin Clark has made the observation that "economic progress beyond a certain stage as often consists in 'capital-saving' as in 'capital-using' discoveries; and indeed in the more advanced communities the former type seem to predominate." (*Op. cit.*, page 503.) Support for this notion is implicit in data presented by Stigler (*op. cit.*, page 52) and for the even more revolutionary suggestion that increased output per unit of labor and per unit of capital may quite often be associated. A valuable compilation by George Terborgh (Machinery and Allied Products Institute, *Capital Goods Review*, No. 22, May, 1955) shows that the ratio of privately-owned plant and equipment to privately-

produced gross national product, both in constant prices, was relatively steady in the tens and twenties, declined thereafter, and stood at distinctly lower levels throughout the postwar years. Similar results have been noted when data for manufacturing alone were considered.

All capital stock measurements are at best somewhat uncertain both statistically and conceptually, and their interpretation in a trend sense is made difficult by the lingering disturbances introduced in war and depression periods. Nevertheless, the following general conclusions can perhaps be tentatively offered. In the nineteenth century, as what Carroll Wright called "machine production" was replacing more primitive methods in the United States, the stock of capital very probably rose in relation to the volume of output. In this century, there has been a tendency for products and processes already mechanized to be replaced by others, more advanced in nature, which in comparable volume require less capital and less labor as well. A balance between opposing influences was attained somewhere around 1920. Today the stock of capital required in relation to total output is less than at that time, and there is no evidence that much immediate change in the current ratio is to be expected.

Turning now to the relationship between total output and resource use, a partial conclusion has already been indicated. Since output of primary industry has failed to keep pace with total production, basic resource use in relation to output has probably declined. Somewhat more concrete information is supplied by a recent census study of raw materials use in the United States. (U.S. Department of Commerce, Bureau of the Census Working Paper No. 1, "Raw Materials in the United States Economy," November, 1953.) If one compares the total apparent consumption of raw materials in the United States with deflated gross national product in the period 1910 to 1952, though this is a mischance procedure, a declining ratio appears after 1920. In the total period there is a drop in the ratio of about one-third. We may conclude, then, that for the economy as a whole the use of resources has declined in relation to production. This seems reasonable in view of the steady reduction in physical commodity-connected activities in relation to total production.

It is clear that total production in the economy has increased in relation to the use of labor, of capital as we value it at some specific time, and of the resources taken from nature. Indeed, it is probable that our production measures undervalue the increase in output in relation to inputs. What is the appropriate scale of values in which to measure the advantages of reducing time for transportation from days to hours, or communication from days to minutes? What value in relation to earlier medicines should be given an antibiotic which is a specific

for a disease formerly often fatal? What economic value do we place on another decade or two added to the average life span?

A similar idea is expressed by Dewhurst:

Such quantitative measures, however, fail to suggest the tremendous qualitative alteration that technology has brought in the way we live and work today compared with half a century ago. No period of comparable length in human history has brought such great changes in the variety, quality and quantity of goods and services available for consumption. In many ways those of us now passing middle age have within our lifetime experienced a greater advance in our material standard of living and a more pervasive change in our way of life than occurred in all the previous centuries of Western history. The mass of the people, it is important to emphasize, have been the chief beneficiaries of this great material progress. (*Op. cit.*, page 835.)

The principal force behind these great changes is technology. The dominant economic discovery of the twentieth century may be stated as follows: Through improved technology, that is, the application of more knowledge to a desired objective, we can quite generally, and not just in isolated instances, increase output in relation to all factors of input. Technology is the expression of how man obtains what he wants from nature. By continued improvements springing primarily from increased scientific knowledge of his environment, he has increased his returns many fold. We can consider these gains in terms of the classical factors of production or we can with perhaps deeper meaning relate them to our population, remembering that, as John D. Black says, "... in the last analysis it is always human effort in one form or another that is economized." (*Production Economics*, Holt, 1926, page 4.)

Technology may raise output in relationship to inputs very directly, or it may do so in a more complicated and indirect way. A simple example, which I like, will illustrate the first possibility. Using a new seed variety, we may obtain with essentially the same land, labor, and capital quite remarkably improved agricultural production, and this happens very commonly. Output increases directly in terms of all factors of production if these are realistically defined. In more complex fashion, we may be doing about the same thing when we obtain textile fibers synthetically rather than from agricultural sources. We now use industrial labor in place of farm labor, chemical factories in place of farm equipment, and mineral resources in place of farm land, but the process is a discrete and total substitution of one technology for another, each with its specific vector of requirements. In relation to some given textile or apparel use, more or less of any one factor of production may be used. There need be no general rule, and in fact economies may be realized in respect to all of them.

Improved technology accounts not only for the increased output in relation to the available inputs in the United States but also in large measure for the major shifts in the composition of production previ-

ously noted. It is only after pressing material wants are satisfied that resources can be devoted to other tasks. As our technology has improved, it has been possible to provide increasing supplies of food, clothing, housing, and manufactured goods with a smaller proportion of our labor force. The general effect is to diminish the importance of the primary industries which predominate in more primitive societies and expand those which have a greater social and cultural content. It is in this sense that the greater health and longevity of the population today are due not only to improved water supplies, better health education, more hospitals, and extended medical research, but also to the earlier improvements of technology in the physical commodity-producing areas which in a fundamental sense made this work possible.

It is feasible here to give only the most cursory review of the general trends in technology itself. A more lengthy discussion is contained in *America's Needs and Resources* where technology is called, I think a little overenthusiastically, the primary resource. (Dewhurst *et al.*, *op. cit.*, pages 834-890.)

The various means for supplying energy to production processes by mechanical rather than human means have been progressively improved from the last century to the present. From a supplier of energy, the average worker has become a director of its use. Today the average worker is supplemented in the United States by mechanical energy sources exceeding by many times his own potentialities. Earlier machines made poor use of mechanical energy and often required a great deal of human supervision. They have been steadily improved, mechanical sensing devices have been developed and added, numerous elementary operations have been joined together, and the extent of automatic control over industrial processes has steadily been extended. Some developments in this long stream of improvement are today put under the heading of automation.

Many other developments relate to the use of newly discovered natural forces or laws to do better what was done before, or with increasing frequency to do what formerly could not be done at all. Some of the most spectacular developments have come from our newer understanding of and control over the electromagnetic spectrum.

Chemurgy continues to be important. Earlier chemical industrial research was directed at finding ways to produce synthetically natural products which were scarce and expensive. Some of these efforts, as in the case of camphor and indigo, were successful. Others, less fruitful, produced substitutes (like the earlier synthetic rubbers and artificial textile fibers) which were inferior to the natural products. From imitating nature, we have gone on to improve on her. The modern plastics and synthetic rubbers, for example, are in no sense direct substitutes

for natural products. They have properties which natural materials in comparable supply wholly lack. Modern developments in chemistry and metallurgy have enormously increased our flexibility in relating available resources to requirements.

Automation—initially a word with a restricted meaning—has come by extension to cover a variety of modern technical developments. Carefully examined, it appears to be a normal and natural outgrowth of preceding technical and industrial development. (See, for example, Hearings and Report, *Automation and Technological Change*, Subcommittee on Economic Stabilization, Joint Committee on the Economic Report, 84th Congress, 1st session, 1955.)

Technology is unmistakably a central figure in modern economic life, but each economist writes his own drama, and as we look on their various stages we observe that, with notable exceptions, technology seems on many of them to have been left in the wings. Well into this century, for example, one might not find technological change, by name or by synonym, listed in the indexes of textbooks on production economics.

The role of technology in shaping economic growth was virtually ignored by the nineteenth-century economists. It is true that Mill referred to the "manifest destiny" of mechanical inventions to lighten the burdens of man, and Marshall added "knowledge" to labor and capital as factors which permitted "the ordinary laborer in the western world . . . [to be] in many respects better fed, clothed and even housed than were princes in earlier times."

But whether they spoke of making pins, playing cards, or watches, the classical and neoclassical economists seemed to think more in terms of rationalization than in terms of the more fundamental nature and consequences of technological change. There was some excuse for this. Technology in their day was a less dominating factor in everyday life. But the habits of thought created in the nineteenth century have persisted into the twentieth. The very elegance of the formulations of and methods created by the earlier economists has converted them into barrier concepts in the sense of Conant (James B. Conant, *On Understanding Science*, New American Library, 1951, especially Chapter 3). The conventional marginal formulation has inhibited habits of thought in which technology is given a central position.

The state of mind does persist. I will not elaborate on the far-reaching and essentially discrete changes often covered by the phrase "changing production function." I will not try to cite instances of attempts to analyze modern economies, in which technological change is a determining element, in terms of classical substitution among factors. Instead, I should like to quote from a remarkable and useful book,

Controlling Factors in Economic Development, by Harold G. Moulton, in which, as in *America's Needs and Resources*, the role of technology is given full consideration. Moulton says: "Even today the conception that the application of additional units of capital to natural resources yields progressively diminishing returns pervades the thinking of economists in the classical tradition." Moulton goes on to attribute the pessimism of J. M. Keynes to an acceptance of this notion. (*Op. cit.*, Brookings Institution, 1949, page 37.)

With no intent to be critical, one may point out that Colin Clark's analysis in his *Conditions of Economic Progress*, trailblazing in many ways, was still essentially conventional. He was much preoccupied with a precisely stated law of increasing returns to scale (which in effect was conceded by Marshall) and which explicitly excluded "... the effects of improvements due to better scientific knowledge, better education, better organization, better use of natural resources. . . ." (*Op. cit.*, page ix.) The extensive data he compiled could have been used—perhaps even more naturally—to adduce a general law concerning the increasing returns of technological change: that technological man, confronted by given resources or a given environment, will over time acquire and apply knowledge in such a way as to increase repetitively the economic benefits and goods which he obtains from them.

I do not mean to decry the value of marginal considerations where they are relevant, and I think, for example, that they have a very important and sometimes overlooked connection with development and applications research expenditures, but I suggest that in an age of rapid technological change they are often and increasingly overshadowed by other problems. Alertness to marginal possibilities is surely a factor in business success, but perhaps of even more importance may be alertness to fundamental technological possibilities which bring in new vectors of factor use. I believe, for example, that a firm which is progressive in innovations even though inefficient in a static factor-use sense may yet be continuously more profitable than another which gives less consideration to technological possibilities.

If technological change is such a dominating element in the modern economy as here asserted, why is it not given a more central place by some economists? A perfectly straightforward and in one sense satisfactory answer to this question was given me by a professor of economics to whom it was addressed. He said that, since an adequate theory to cover it was not available, he preferred to work in other areas.

I suggest that it is fairly important for modern production economics and economics in general to develop and perfect a usable theory of technological change. I will hazard the guess that this theory, when formulated, will depend substantially on statistical considerations and

will develop around input-output analysis and its programing extensions, where the bones of technology are left in the anatomy of the economy and not discarded before examination begins.

Perhaps we may now hazard a short look ahead. Will production continue to grow roughly as it has in the past, or is some contravening factor likely to interfere?

Those who have considered this thoughtfully seem in the main qualifiedly optimistic. This is the tone of *America's Needs and Resources*. It is that of the report prepared last year by the Staff of the Joint Committee on the Economic Report and of the other projections summarized therein. I had the pleasure of hearing the views of a number of distinguished economists on various aspects of this question at the Merrill Center last summer, and I should say that they too were optimistic.

The views reported above refer to the next decade or two. Taking a longer perspective, Harold G. Moulton states and answers the question as follows:

In the light of present knowledge what may one say with respect to the economic potentials of the next hundred years? Concretely, have the limitations of nature been permanently overcome—with the law of diminishing returns abolished, so to speak? Stating the matter another way, are the resources of nature as a whole adequate to permit a growth of population and rising standards of living in the century ahead comparable to what occurred in the century which is past? Or must we in the not distant future expect a declining rate of economic growth? (*Op. cit.*, page 203.)

... there can be little doubt that the onward sweep of science and technology as a whole is such that in one way or another scientific advancement as applied to the processes of production could yield results of the magnitude projected. . . ." (*Op. cit.*, page 246.)

Opinion is likely to be more divided on whether continued growth can occur without risk of interruption by major cyclical fluctuations, but I think that a consensus would be to the effect that many structural and institutional factors added to the American scene since 1929 would tend to limit both the amplitude and duration of such disturbances.

What of output growth in relation to labor availability? There are, of course, inherent relationships between production, income payments, and effective demands which tend to inhibit the development of any gross disbalance. But there may be problems of another kind. The greatest past displacement of labor by reason of technological change has gone largely unremarked. This is the displacement of the unskilled, manual laborer from farm and factory alike. Present trends in technological development, insofar as they may affect fairly large groups of workers, seem directed again toward the lower end of the scale of skills. It has been the habit of technological change in the past—and it should continue in the future—that while it reduces jobs for untrained people, it multiplies opportunities for those with more adequate background.

Hence problems of training and education, especially for but not limited to the technical and professional fields, are already causing concern, and they may become more acute in the future. It is too early to say how far present failures in this respect may limit future growth.

The problem of adequate capital for growth seems less pressing. It takes much less time to create a factory or even a new industry than a highly trained man. The tremendous adaptability and flexibility of the American economy in this respect could not be better demonstrated than by our experience in World War II, when entire new industries were created to produce by 1944 about 44 per cent of the world munitions output. As Dewhurst says:

Our wartime experience demonstrated that deficiencies in the productive capacity of our physical plant can be quickly overcome. In spite of a multitude of difficulties that do not exist in time of peace, we were able to maintain our civilian standard of living, fight a global war and at the same time vastly expand our total capacity to produce the kinds of goods we needed to win the war. Inadequate capacity, in terms of specialized industrial and commercial structures and equipment, was no more than a temporary hindrance to the fulfillment of war requirements. (*Op. cit.*, page 940.)

Colin Clark has presented data which show the difficulties of nations in accumulating a capital stock when at a low stage of industrial development. At a higher level, these difficulties progressively diminish, and for a nation such as the United States should readily be overcome in almost any circumstances. (*Op. cit.*, pages 484-504.) There is no reason to suppose that any reasonable degree of automation will change this conclusion. It may seem surprising, but capital required in relation to output may be less when using electronic computers than if the same operations are performed on desk calculators.

Resource availability does not seem likely to impose any serious overall limitations, although spot shortages of particular items may create difficult problems. An ample supply of power, which is vital for a growing economy, seems assured. Quoting Dewhurst:

We may need to apply relatively more effort to supply materials in the future than we have in the past. The additional work may place resource industries at a handicap, especially in competition with foreign supplies of higher grade. The effect on our economy as a whole, however, is likely to be small. Only a minor share of the total labor force in the United States is engaged in supplying raw materials. Even at twice the cost, supplying raw materials would still require only a small part of the total national effort. (*Op. cit.*, page 781.)

The final ingredient needed for a healthy economy growing in the pattern of the past is the steady development of technology. In the nature of the case, the probable line of change here cannot easily be foreseen. However, there should be little slackening in the near future, even if progress were limited to developments now in sight. A rather more common fear is that the pace of technological development may

unreasonably accelerate. It seems to me that there are a good many effective regulators built into the economy to check this tendency if necessary, and that it is more likely that, because of fear of too much, we might get too little.

In the nature of things there is always an uneasy balance between the desire for security and stability on the one hand and the requirements of flexibility and adaptability on the other. Progress implies change; hence progress and stability are in some sense contradictory objectives. A wise compromise between them must be sought, keeping in mind that he who would forego progress to buy security may purchase neither.

TRENDS IN AMERICAN CONSUMPTION AND THE ASPIRATION TO CONSUME*

By RUTH P. MACK

National Bureau of Economic Research

I

The dominant fact about consumption in the United States today is its extraordinarily high level. The dominant fact about its history is that though from early days of the Union it seems to have been high by contemporary European standards, it has increased rapidly at a relatively high rate compared with other places in the world.¹ In decade averages, the increase in per capita consumption in constant prices from the post-Civil War to the post-World War II decade has been 22 per cent per decade, or a total increase of more than fourfold over the eighty years.²

A second sensational aspect of change is the shift in the point at which what we call "consumption" takes place. Whole industries have arisen to perform the work that consumers used to perform largely in their homes a century ago and very considerably in their homes even

*I am indebted to Simon Kuznets for permission to use unpublished estimates and for some exceedingly constructive criticism. For the latter service I am also grateful to Moses Abramovitz, and to Robert W. Smuts for helpful ideas on research and bibliography.

¹The conclusion about the early high level (statistics are available only after the Civil War) is based on evidence of the high level in 1950 and a trend which is not substantially higher than that of several other countries. (See Moses Abramovitz, "Resource and Output Trends in the United States since 1870," and Simon Kuznets, "Toward a Theory of Economic Growth" [paper presented at the Bicentennial Conference III, Columbia University], Section IV.) The indication that in 1860 real income was high in the United States compared with Europe is endorsed by the most extensive study I know of based on contemporary sources: Edgar W. Martin, *The Standard of Living in 1860* (Chicago University Press, 1942). Comparing the American standard of living with that of other countries, he concludes that "it included a greater amount of goods in every category of consumption, and the amount was greatest of all in those categories where goods could be produced, uniform in pattern, in large quantities." (P. 402.)

For 1909 or 1910 international comparisons of real consumption were made by Irving B. Kravis, "International and Intertemporal Comparisons of the Structure of Consumption," paper prepared for the Conference on Consumption and Economic Development, Universities-National Bureau Committee for Economic Research, October, 1955. If United States real consumption is taken as 100, the index number for Sweden is 47, for the United Kingdom 69, and Norway 39. On the basis of a contemporary investigation, report of an *Enquiry by the [British] Board of Trade, Cost of Living in American Towns* (His Majesty's Stationery Office, London 1911), the comparable figure for the U. K. was 66. It was based on an investigation of budgets and wages of American and English workmen in a limited number of industries. The conclusion was reached that food and rent combined cost 52 per cent more in America than in England whereas money earnings of workmen were 2.3 times those in England and Wales (p. lxxvi).

²Based on estimates by Simon Kuznets, forthcoming volume, *Capital Formation and Financing in the United States: Trends and Prospects* (National Bureau of Economic Research), Part B, "Estimates for Overlapping Decades, 1869-1953," Table B-11, Variant III.

half a century ago—women's and children's clothing manufacture, much general education, many of the service industries, including the now 13 billion dollar hotel and restaurant industries, and the many and huge food processing industries.³ In addition, the amount of the labor of householders that is mixed with purchased goods to make them usable has decreased because of changes in the product; at the touch of a button the housewife commands heat and light that it took her many hours to urge from wood, coal, or kerosene. The shift to factory or store of work formerly done in the home has been accompanied by a parallel shift in the work of women whose employment outside of the home has risen sharply over the years.

The third salient characteristic of change is the enormous proliferation of the sorts of articles and services that are provided. The chief member of this large and prosperous family is the mass-produced durable mechanical article. For the home, mechanical appliances, largely electrical, were the object of 3.5 billion dollars of expenditure in 1953; radio and television added another 2.2 billion. Automobiles cost 10.7 billion. If we add the cost of auxiliary acquisitions, fuel and repair, the group involve a 32.3 billion dollar expenditure or 14 per cent of total consumption in 1953.⁴ These goods save several billion woman-hours of work a year in homes, change the orientation of our life through the vast implication of what appears in the statistics as "user operated transportation," peculiarly expose us to the seduction of other goods, and imprint their mark on the face of industry as well as on consumption.

Other important trends include the reflection of the shorter working day and higher incomes in expenditure on recreation, which rose, according to Dewhurst's figures, from 4.7 per cent of total consumer expenditure in 1900 to 7.5 per cent in 1953. Expenditure in accumulating personal capital through health and education increased from 3.5 per cent of the total in 1909 to 5.4 per cent in 1953.⁵

The two major trends—the more advanced stage of processing at which consumption starts and the multiplication of goods and services, especially of the mass-produced mechanical durable good—imply dif-

³ Value in 1913 prices of finished commodities destined for domestic consumption were estimated for a large number of commodities by William H. Shaw, *Value of Commodity Output since 1869* (National Bureau of Economic Research, 1947). The clothing and personal furnishings group averaged for 1869 and 1879 were 233 million dollars and 2,072 million in 1937, an increase of 9 times. In 1869, "food and kindred products, manufactured" was slightly smaller than "nonmanufactured": 468 and 486 million dollars, respectively. In 1937 the product of the nonmanufactured food industry had increased 5.7 times, to 2,765 million, and of the manufactured food industry 15 times, to 7,059 million; for the latter the increase based on the average of 1869 and 1879 was 9 times. A similar figure for all consumers' goods was also 9 times. It is unusual for any single older industry to keep up with the aggregate.

⁴ Figures are from *National Income, 1954* (U.S. Department of Commerce), Table 30.

⁵ Percentages are based on Appendix 4-4, Frederic Dewhurst and Associates, *America's Needs and Resources* (Twentieth Century Fund, 1955).

ferent trends in major divisions of consumer buying. That the different trends were present may be seen in Simon Kuznets' figures for four components of total consumer buying, per capita and in constant prices. The percentage rate of increase was 22 per cent per decade for the total, while expenditure on services and durable goods each rose at a rate of 25 per cent. Semidurable goods, consisting largely of clothing, grew at the relatively slow rate of 15 per cent, and perishable articles, notably food, increased at an average decade rate of 21 per cent.⁶ M. K. Bennett finds little evidence that ingestion increased over this period; indeed he thinks it probably declined.⁷ Consequently, the increase in expenditure on perishables reflects the increased processing of food on which I have already commented, some shift to more expensive foods, waste, and perhaps an inelastic reaction to differential price change as well as the inclusion of a few nonfoods in the perishable category.⁸

The faster rate of increase in durable goods and services is also implied by that most notable of all trends: the rapid rate of increase in real consumption. Since saving maintained a fairly steady relation to income, this rate applies to consumer disposable income as well. Interfamily income-expenditure comparisons tell us that characteristically a larger percentage of large than of small incomes is spent on durable goods and on certain services. One would assume, therefore, that the same rule would apply to aggregates if income were the only important influence on real expenditure that changed with the years. It does apply very roughly for durable goods and perhaps for services, though for clothing and perishables there is puzzling lack of similarity in the income elasticities of expenditure based on interfamily budget studies and Kuznets' figures.⁹ The puzzle consists not in the fact of the differences (since changes in all sorts of things other than income must cause changes in the structure of consumption) but in the specific explanations. The great increase in the absolute level of output is also an

⁶ Based on Table B-19, Variant III, Kuznets, *op. cit.*

⁷ M. K. Bennett, *The World's Food* (Harper and Brothers, 1954), p. 162. The judgment applies to the past four decades. Bennett concludes that the poundage of food consumed has probably risen about 4 per cent in thirty-five years while caloric consumption has fallen, largely because of increases in per capita consumption of milk, fruit, and vegetables (p. 163).

⁸ Gasoline, drugs, and toilet articles accounted for 9.7 billion of the 74.0 billion dollars (current prices) of perishables purchased in 1953.

⁹ According to Kuznets' figures, perishables averaged 42.2 per cent of total consumption, 1869-89, and 38.7, 1943-53. The corresponding figures for semidurables were 16.0 and 9.9; for durables, 9.2 and 11.0; for services, 32.7 and 40.4 (from appendix Table B-19, Kuznets, *op. cit.*). A rough measure of income elasticity for the four categories of expenditure, obtained by dividing the average decade percentage rates of change for each category by that of total consumption (assuming saving had maintained a roughly constant relation) is as follows: perishables .95, semidurable .68, durables 1.15, services 1.16. The figure for perishables would probably be reduced to no lower than .8 by allowing for nonfood items. These figures are substantially different from those based on family income-expenditure surveys.

important reason not only for the proliferation of goods but also for the shift in the dividing line between what we term consumption and production.

The trends seem, then, generally consistent with one another. However, in order to utilize knowledge about the past to cull the full meaning from the present or to judge what the future has in store, it is necessary to understand the processes to which the trends may be attributed. I hold that one cannot adequately explain the most notable of the trends in America—the growth in real consumption and its high level throughout—without recognizing the unusual force of the drive to consume and its effect in activating productive effort.

Since the lion's share of national product consists of consumption goods, its high level and rapid growth must be explained by the high level and rapid growth of total output. This history has been credited to richness of natural resources, including the size of the country and special work-talents and attributes of its people, and to derivatives such as mass markets or a high degree of competition. Yet these explanations seem to assume a zest for work and a willingness to take chances which themselves require explanation. I submit that part of this explanation lies in the unusual interest in consumer goods that has characterized the American scene. Income, in short, is a function of consumption, via consumption standards, just as truly as consumption is a function of income.

Let me say at the outset, I cannot prove this hypothesis. It emphasizes one strand in the thick skein of historic change which cannot be untangled from the rest and tested for tensile strength. I have gone to no great lengths to present documentation when similar efforts could produce documentation to the contrary. I have, however, tried to assemble such facts as are accessible and relevant, though those displayed are for the most part relegated to footnotes. Other tests are possible but not likely to be definitive and therefore, since they are costly, inadvisable. International comparisons are highly pertinent as test and as amplification but are outside the scope of this paper. For the most part, then, I aim simply to present a convincing argument—one which will appeal to each person's mature judgment about history because it helps to make sense of the record without conflicting with pieces of it. The interpretation, if valid, has implications about what the future has in store and what to do about it, and therefore should not be snubbed for want of scientific pedigree.

II

The drive to improve one's plane of living has been compounded of several forces the relative importance of which changed at different

stages of our history. At all stages it involved first the desire and second—and perhaps most peculiarly—the belief that some measure of fulfillment of the desire was possible. I say “most peculiarly” because communities differ more with respect to the things people believe to be “for me” than they do with respect to intrinsic wants. Few people, indeed, do not know of others whose living they consider superior to their own. But this knowledge does not really activate them unless in some sense they believe this group’s attainments applicable to themselves. The belief that improvement was possible was more common in America than in most other places for several reasons:

1. Many of the people who came to America during colonial days—and probably most who came during the nineteenth century—believed, more than most in the communities from whence they came, in the power of an individual to alter his lot. Why else would they have left family and friends to undertake the miserable and perilous ocean voyage and have faced “the evils that one knows not of” at the far port and after?

2. In this country there existed, except in the South, a society that was egalitarian compared to contemporary European standards. In a relative sense, each individual, or at least his child or at worst his child’s child, might change places with the next man or his child. This notion incubates the daydream that betterment is “for me.”

3. The possibility of betterment was widely advertised by the fact that many people were known to have moved up the ladder. On this point there is some evidence. I refer not to the sensational success stories but to the myriads of minor success stories to which so many travelers’ tales or contemporary statements relate. Though many small studies give statistical support to these stories, the only large one that I know of is implicit in the report of the Immigration Commission in 1910.¹⁰ There, occupations are reported by country of origin for all immigrants, for all second generation immigrants, and also for native whites. Selecting immigrants from English-speaking countries (to eliminate the bias of the language difficulty in the occupations of the first generation), I calculate that of the English-speaking immigrants working as laborers who settled in America from approximately 1860 to 1895 at least half of the sons moved up the work scale from the jobs

¹⁰ A few particularly interesting small studies are: Pauline Gordon, “The Chance to Rise within Industry; a Preliminary Study of the Opportunities of New England Workmen to Rise, From 1865 to 1895” (Columbia University, M.A. Thesis, 1945); Brown and Sharp *Apprentice Graduates* (Brown and Sharp Manufacturing Company, 1940); *The Apprentice System of the Lynn Works* (General Electric Company, West Lynn, Mass., Bulletin GEB-14-E, 1931); P. F. Davidson and D. H. Anderson, *Occupational Mobility in an American Community* (Stanford University Press, 1937). For indirect evidence, see Robert W. Smuts, *European Impressions of the American Worker* (King’s Crown Press, 1953).

of their fathers.¹¹ This figure, which is doubtless a minimum estimate, supports the notion that advancement in the work scale was usual and news of neighbors moving up upheld the belief that it could be done.

To the more common and stronger belief that improved living was a possibility, was added greater desire for goods. Several factors contributed:

1. Ours was a strongly thing-minded culture. Our heroes were not men of elegance and breeding or men of great intellectual or artistic achievement, but people who performed feats of strength and endurance in the battles of life, who gained power over things and over men, who earned and spent money and climbed the ladder of fame and fortune.

2. The thing-mindedness was given a very specific turn toward consumer goods by the unusual power of women (achieved perhaps through their early scarcity value) which persisted in some measure throughout the nineteenth century and early twentieth. But whether because of scarcity or witchery, American women managed to implement their belief that they should do as they like, and so should men. What they liked was to make their homes comfortable—as comfortable as Mrs. Jones's home. In a thing-minded culture, this takes money, and so men have been inspired or provoked into earning it.¹² In addition, married women themselves have taken on gainful employment in increasing numbers. A century ago, it was exceptional for married women to work. Today, 27 per cent work. Moreover, a large number of working wives have husbands whose earnings are sufficient to provide for the basic necessities of life, and wives work in order to confer a higher income status on the family.¹³

¹¹ Of the English, Scotch, Irish, and English Canadian immigrants, of whom there were 1,344,000 breadwinners, 155 out of every thousand were laborers; for the second generation, the figure was 92; for native whites, for whom national origins are not identified, the figure was 80. The census category of "laborers, not specified," may be considered to lie low in the occupational scales. The report states that it "indicates as a rule, employment in unskilled manual labor requiring only ordinary intelligence and commanding comparatively low wages." Assuming that there was no marked systematic difference in the sorts of people immigrating from English-speaking countries during the generation prior to that working here in 1910 and the 1910 group, the figures can be brought to bear on the frequency that intergeneration improvement occurred.

¹² I am tempted to combine two remarks widely separated in time: Alexis De Tocqueville, in *Democracy in America* (1835), said: "I know of no country . . . where the love of money has taken stronger hold upon the affection of men"; Joseph Wood Krutch (*American Scholar*, Autumn, 1955) passes on to his readers the lament of a middle-aged gentleman upon viewing the baul of his wife just returned from Mexico: "It's amazing the things women would rather have than money."

¹³ In urban families, 26 per cent of the wives between the ages of eighteen and sixty-four having husbands earning \$4,000-4,999 a year were gainfully employed; for husbands making \$5,000 and over, the figure was 18.4 per cent. Employment of wives becomes more common as husbands' income drops. Thus, by categories of one thousand dollars of husband's earnings from the \$3,000 to \$3,999 groups to the under \$1,000 group, the percentages of urban wives working were 28.9, 34.7, 41.9, 46.3. (*Current Population Reports*, p. 50, No. 44.) The fact that the inverse association between income and wives

3. Consumer goods were valued for themselves but they were also valued as a mode of establishing social priority. The point has been touched on in connection with women; for men, too, prestige attaches to the adornment of home, wife, and daughters. This is certainly at least supplementary to the prestige value of the job itself. In countries in which social priorities were based on aristocratic tradition, consumer goods could not serve this function to anything like the same extent. If I am correct in thinking that the need to establish a "pecking order" is universal, the value of possessions in establishing it must give a further meaning to consumer goods in America. The fact that the pecking order, once established, was not perpetuated by birth and primogeniture preserved the prestige value of goods.

4. Finally, many sorts of consumer goods are probably more strongly desired here than elsewhere because they are better. Inventive genius, the high rate of innovation, the high degree of mechanization, which is partly induced by high wage rates and partly made possible by the mass markets that high wage rates provide, have meant that the wants of American consumers have been titillated by the availability of particularly attractive new goods at a price that make them accessible to the many. These are goods that on the one hand are likely to form the spearhead of prestige demand and enterprising consumption and on the other hand benefit most from mass production for a mass market and enterprising production. There is, of course, an element of circularity in this reasoning, but if so, it is not the circularity of a closed ring but of a coiled spring.

I have mentioned seven reasons why Americans are likely to have strong aspirations toward consumption, in addition to the biological need to live without debilitating hardship. They involve both a belief in the possibility of, and a desire for, increased consumption. Contributing to the belief that betterment is "for me" are: selective immigration, an egalitarian society, the experience of social mobility. Contributing to the desire for goods are: thing-mindedness, the power of women, prestige value of consumer goods, the unusual attractiveness of many goods. The relative importance of these several motives has shifted from time to time in ways that we cannot stop to trace, but the influence of each has great momentum; the influence of all, like most social phenomena that nourish one another, more momentum still.

The argument implies that the satisfaction per unit of real income, once the level necessary to a bare living has been attained, has on the

at work holds among countries and among local areas (see Clarence D. Long, *The Labor Force under Changing Income and Employment*, National Bureau of Economic Research, in press) has led me to give up the idea of trying to learn whether international differences in the proportion of wives at work, other things the same, might reasonably be attributed to factors of the type considered in this paper.

average been greater here than in countries where consumer goods serve fewer purposes. The marginal utility per unit of real income above subsistence level has been greater.

Though, as I said, this thesis cannot be put to a proper test, it carries implications concerning the structure of consumption, and it is useful to see that changes in the sorts of goods that have been purchased seem compatible with the analysis. The phenomenal growth of automobiles and electric appliances is a case in point.¹⁴ Certainly these are the sorts of goods most likely to wield the extra leverage of prestige in forcing their way into the budget. The fact that less has been spent on food by native American families than by immigrants with comparable incomes is the reverse side of the same coin.¹⁵ Another case in point is the intense popular demand for education, manifested in the rapid growth of public schools and the Lyceum movement in the nineteenth century and culminating today in the unusually high percentage of the population enjoying all sorts of public and private educational facilities.¹⁶ An intense desire to get on would be expected to cause a spirited drive to amass the personal capital that getting on requires. In the increased employment of married women there appears to be another piece of evidence indicating that women at least are in earnest in their drive to realize the dream for more consumption goods.

III

I started with the thought that a fundamental fact requiring explanation was the size of aggregate consumption, which means aggregate out-

¹⁴ It would be desirable to compare expenditure and rates of growth in other countries, but this is virtually impossible. Kravis' figures (*op. cit.*, Table 1) give real income and expenditure for user-operated transport for a number of years for a number of countries. In Norway, the United Kingdom, and Sweden, real income in 1953 was equal to that of the United States in the early twenties, and yet the per cent expenditure for autos was less than in the United States. That expenditure is less, in spite of progress in the industry between the early twenties and 1953, is certainly an argument in favor of greater demand in the United States. However, there are too many other relevant variables for this to be a valid conclusion. The problem of drawing proper comparisons for electrical goods is even more insurmountable.

¹⁵ Budget studies where native white and immigrant families of given incomes have been studied have shown a tendency for immigrants to spend more on food in each income group than native families; e.g., *Eighteenth Annual Report of Commissioner of Labor 1903: Cost of Living and Retail Price of Food* (Department of Commerce and Labor), Table V. D, pp. 560-564. See, also, Ascher Achenstein, *Report of the State Board of Housing on the Standard of Living of 400 Families in a Model Housing Project, the Amalgamated Housing Corporation*. The proportion of immigrant families in this group was very high, so that it provided interesting contrasts with other contemporary studies, and the emphasis on food expenditure was apparent. Irving Kravis, *op. cit.*, has charted the per cent of total expenditure devoted to food and drink for several years for fifteen countries against real per capita income. The figures for the United States and Canada are well below the others for overlapping incomes.

¹⁶ Martin, *op. cit.*, p. 297, cites estimates of the U.S. Bureau of Education to the effect that in 1860 each person received on the average about 21 months and 14 days of education. This might have been about $2\frac{1}{4}$ school years; the corresponding figure for 1930 was 84/5 years. In 1953, the comparable figure seems to be 12.1 years. (Dewhurst, *op. cit.*, p. 380.)

put or aggregate income. If we grant the strength of the aspiration to consume, how does it affect the size of national income? I have answered thus far that because people want more things more, they work harder, other things being the same. But in America other things have not been the same. What we have called the greater utility of consumer goods is matched by a lesser disutility of work and a higher reward per unit of work. If economic effort is not a constant among societies—and who would claim that it is—greater effort must be forthcoming.

Less disutility of work is related, as heat to light, to some of the same factors to which I have attributed greater utility of consumption goods. Work was more honored, more mandatory (nonwork was sloth, even for women); work was less onerous in that the machine took over some of the worst jobs. Work, far more commonly than in most parts of the world, resulted in advancement and business success, which not only carries the satisfaction of any palpable achievement but of prestige as well. Finally, work was better rewarded here than in most other places—the real value of wages was higher.

Thus greater aspiration for consumption, less disutility of work, and greater monetary reward for work re-enforced one another in bringing forth greater productive effort. The relationship between factors of this kind and productive effort has been acknowledged before in many ways. It is, of course, the basis of incentive systems of pay. The role of incentive of other sorts is perhaps implicit in the common argument that growth of population contributes to economic growth. For certainly national markets for goods are not automatically augmented by the arrival of a large number of naked babies or of immigrants with empty pockets, whereas the argument that babies or immigrants provide the work force necessary to economic growth is contradicted by the decrease in the length of the working day. Yet they do probably contribute to growth via their meaning in terms of incentives. The force of incentive appears also in the evidence that married men earn more and work more steadily than single men. This can hardly be attributed to the good forecasting ability of young ladies; rather must it be considered a case of the self-fulfilling forecast.

I conclude that during long stretches of American history many people must have put forth greater economic effort than characterized the corresponding groups in the old world. Part of the growth of output in this country was certainly a function of this forced endeavor. It could take the form of:

1. Harder work: greater output on piece-rate jobs, greater output on other jobs in the hope of promotion, shifts to harder but better paid jobs, more energetic attention to detail in supervisory or managerial jobs.
2. The work of more members of the family: enlistment of children

and wives and the correlative willingness of the homemakers to take over the work of the additional breadwinners.

3. Investment of more of one's total capacity in the job: this applies particularly to jobs in which ingenuity, invention, or other creative thinking and experiment play some part. It is involved in the willingness to make an investment in one's future through education.

4. A heavier bet on success: the willingness to suffer uncertainty, to risk more, to take larger chances by changing jobs, moving, investing capital.

The mere listing of these categories and further consideration of ways in which an individual may improve his earning make it clear that many forms of individual endeavor may be doomed to collective defeat. Were this generally the case, the force would soon cease to operate.

The most obvious form of limitation is a financial one. It is necessary to finance the interval between productive effort and production, if the national product is to be increased by the additional effort. In the United States we have had many sorts of credit mechanism capable of bridging the gap. They ranged from local stores' barter transactions with neighborhood folk or the financing of promising young men by local bankers and other prominent individuals all the way to the resources of the central money markets here and abroad.

Another way in which individual effort can suffer collective defeat is through the limitation of the job structure. The list of ways in which individuals may improve their earnings contains some that concern harder or more effective work in a given job. This avenue to self-improvement is relatively immune to collective veto. But the list also includes movement from poorer to better jobs, and the possibility for many individuals to obtain better jobs is limited by the capacity of the job structure to provide them. For many years, the frontier and free land provided significant elasticity. Up-grading of the job structure was provided by some of the very things we have been considering, particularly the creative aspects of economic effort. The expanding economy provided an absolute increase in the number of better jobs as well as lower ones, too. An exceedingly important factor, perhaps not commonly emphasized, is the role of immigrants. Heavy immigration made more of the upper jobs available to native Americans, without penalizing industry by a disproportionately high cost of common labor. Typically starting in the more menial jobs, immigrants provided a strong freshet of new labor that flowed into the ground floor of the job structure and boosted the current incumbents up the stairs. Farm-urban migrations and the increased employment of women may, to a lesser degree, have had a similar effect.

Because of these particular circumstances, increased earnings could

occur in mass, not merely as a result of harder work and greater productivity on a given job, but because of shifts to constantly better jobs. This weakened the disutility of work by strengthening the legend of the success story; it re-enforced the aspiration to consume by constant demonstration of improved earnings, translated into finer clothes, houses, and accouterments. These things (both from the side of production and of mass markets) joined with native ingenuity to produce the superior mass-produced product that Martin and others acclaim as an earmark of American consumption. These superior goods further strengthened consumer aspiration, and so the spiral mounted.

IV

I have drawn a picture of what may be thought of as consumer enterprise—a companion piece to business enterprise—which has played an important part in economic growth in this country. The picture attributes to consumption a more active part in trend change than is implied by the thinking that lies behind notions such as propensities to consume and acceleration or multiplier models. If these evaluations are correct, they have implications concerning what the American experience can contribute to the solution of problems of economic development in other parts of the world, concerning properties in the formal analysis of consumption, and concerning what the future here may have in store.

The first set of implications—those bearing on patterns of economic development elsewhere—are clear enough. Though savings are necessary to the expansion of production facilities, the opposite side of the coin must likewise be kept in mind: spending, or the aspiration to spend, is necessary to provide the incentive to productive effort; this applies not only to the few but to the many—the people who provide the hands as well as the capital and leadership of industry. My reading of the American experience suggests that rapid economic growth of the American variety is built in significant part on basic values and aspirations of a people—values and aspirations that when the matter of degree is considered are not indigenous to all people, not even to all Western peoples. If this is so, early stages of fostered growth must proceed slowly in areas where aspirations to consume and other economic values are less central to the value scheme. Economic effort is likely to be awkward and intermittent until desire for material things grapples on to the value system, manifesting itself in strong aspirations for goods at home and willingness to cope with machines and production lines at work. Such values, familiarities, and expectations do not come in crates along with imported machine parts. Without them, the parts may remain improperly assembled or improperly operated. Disappointment may be the chief product, one having a peculiarly corrosive effect on

other products, especially the product, welfare. In short, if our experience is incompletely understood, it may lead to gross miscalculation of the pace at which economic growth may be induced. Misunderstanding of pace may be fatal alike to the old values and the new.

As to the bearing of these observations on formal quantitative analysis of consumption, the long-term trends in consumption are a function of consumer income. Long-term trends in income are a function (via aspirations to consume) of consumption—present and past. The net regression of consumption on income (with or without other variables) calculated from time series for a period of years actually reflects this two-way causal association and in this sense the model is potentially mildly explosive.

But even if the net two-way association of income and consumption is all that can be measured, the association is not likely to be the same when derived from time series as when derived from area surveys of individual families at a given time. The latter should present a flatter regression than the former. That this is the case the figures show, and the explanations put forward in the "relative income hypothesis" is that standards influence consumption and therefore, as standards shift upward over time with rising income, saving is held in check. I make the further point that standards influence income. Over time, people want more goods and try to make the money necessary to buy them; since they earn primarily in order to spend rather than to save, their spending adjusts itself to the new level of income at a higher ratio than applied for their previous total income. This explanation merely supplements the relative income hypothesis. However, it goes further by indicating that the behavior of saving in our culture (and the same would not necessarily be true of saving in other cultures) is one instance of a general point; namely, that purchase of goods (including the good, security) that are not the prime instigators of economic effort has a flatter regression on income over time than among families at a given time, other things the same.¹⁷ For the goods possessing particular appeal the reverse should be true, other things separately accounted for. Whether this is or is not so is a tempting question, a solid answer to which might help to evaluate the notion I have expounded. But the difficulties of enforcing a *ceteris paribus* condition in dealing with long-term trends are probably insurmountable.

¹⁷ There is some evidence that this may be the case for food. James Tobin, "A Statistical Demand Function for Food in the U.S.A.," *Journal of the Royal Statistical Society*, 1950, p. 113. The income elasticity based on budget data was .44 and on time series (in which the influence of food and of other prices was also taken into account) was .27 for 1913-41. Some of the difference must be due to the fact that the time series were physical quantities and therefore doubtless omitted at least full account of many of the more elastic food items. But, certainly, Tobin's findings are hard to reconcile with Kuznets' figures (see note 9 above).

The argument that I have developed suggests that we deal not only with a complicated model (in which, as research of the past twenty years has indicated, many variables play a part) but with a potentially explosive model in which effect becomes cause and cause effect. I might add that my studies of short-term change in the shoe, leather, and hide sequence raise similar problems: business reactions to changes in consumer buying tend to amplify the change in buying, through changes in output and income, but the amplification differs depending on many factors having an irregular impact, and perhaps here, too (via expectations), an explosive element is present, as the reaction influences income which in turn influences consumption. Certainly this sort of model glows with red flares to warn away the seeker after constant, durable, and precise relationships. Instead, it invites studies that are tailor-made to focus sharply on determining the direction in which particular variables propel consumer buying or saving—variables selected because they are known to be potentially important at a given time or place. It counsels, likewise, in view of the inability to closely predict change, that efforts at economic management must be armed with tools for early detection of change currently under way. This is quite possible, for though consumer buying is willful, it is not deceitful.

Finally, what does the history of consumption suggest about future developments in this country? It suggests that consumer enterprise is a first-line defense against stagnation. In the past, the aspiration to consume seems to have been a major source of productive power in the human part of our capital plant. Were this aspiration to fall off, productive effort—and with it national product—would tend to further slow its rate of growth or to decline, other things the same. I refer not to the sequence of events that starts with an increase in saving relative to income and proceeds, according to Keynesian thinking, via inadequate capital formation to a decline in future national income; I refer rather to the direct impact on the rate of growth in income itself of lessened incentives to economic effort.

Consideration of the factors that have strengthened aspirations and their power to influence output in the past suggests some thinning of these growth forces. Social mobility has probably lessened but exposure to the possessions of others has certainly heightened. The battle of woman against man is at least entering a new phase—that, perhaps, of orderly retreat, judging from the number of fathers found behind baby carriages and mothers behind counters. Certainly the flow of immigrants and other new recruits into the lower levels of the job structure has sharply decreased except, perhaps, for the increased employment of women. In consequence, people cannot move *en masse* into better jobs more rapidly than the slowly changing job structure, aided

perhaps by better placement work, provides. Nevertheless, sufficient power doubtless remains in consumers' aspirations and in the capacity of the economy to foster them to continue to provide an important bulwark against stagnation. Because it is based on deeply embedded values and mores, having inevitably great inertia, it is not simply a fair-weather bulwark.

Nevertheless, it is not entirely impervious to an excess of freezes and thaws and requires protection. Directions in which protection may be sought lie in preserving the factors that seem to have been important in generating enterprising consumption in the past: the social mobility and job opportunities just discussed; vigorous competition as a means of activating a flow of new products at low prices; vigorous competition that preserves small business and effective freedom of entrance into new fields; healthy credit facilities for consumers as well as small business; and, important as it is subtle, a basic atmosphere of confidence that makes lifetime plans worth pursuing at the cost of present effort. The deeply felt belief that the cloud of Hiroshima will tomorrow or the day after obscure one's own sun may increase the propensity to consume today but it will decrease the propensity to work today in order to consume tomorrow.

These thoughts help to define how the economics of consumption and production intermesh. They point to wide areas of identity in consumer and producer interest when both are considered in the proper time-perspective. How the full economic interest or welfare may be harmonized with the total welfare of human communities is a further matter which, fortunately, I have not been asked to consider.

CHANGING PRICES AND VALUES IN THE FIRST HALF OF THE TWENTIETH CENTURY*

By ARYNESS JOY WICKENS

U. S. Department of Labor

To assess the role of changing prices and values in the growth of the American economy in the first half of the twentieth century is a formidable and complex task. It has proved stimulating, however, because it has again reminded me both of the compartmental character of our economic thinking and of the underdeveloped state of the technology of economic analysis, particularly in the first quarter of this century. The statistical tools for making such an analysis with any precision are often quite inadequate, even as late as the twenties, and for that reason the estimates presented here are necessarily approximations. Many of the broader measures of changing values are available only until 1950 or thereabouts, but wherever possible, I have also used the latest reports for 1955.

I realize that it has gone out of fashion among economists, of late, to give more than passing attention to prices and values as dynamic factors in the economy. To be sure, changes in the price level are alluded to politely, but too often superficially, as indicators of the extent of inflation. As deflators, price indexes are part of the tool kit of those economists whose analysis centers around the gross national product. And, of course, each year at this season, the future course of prices is forecast, dutifully, by those who gaze into their crystal balls. For the most part, however, prices of commodities alone are assumed to represent *the* price level, while prices of the services which now form such a large and growing part of our national economic output are neglected; and values of the equities—in securities and in real estate, for example—are treated as an entirely different subject. Yet the relationship of these prices and values, in historical perspective, can reveal much concerning the current state of the economy, the balance or imbalance among its various sectors, and the adjustments which have gone on or may be expected to occur in consequence.

Before considering the economic factors underlying the rise in values of the twentieth century or developing further the price history of various standard goods, let us examine some of the implications of these comparisons with the year 1900. First, why 1900—beyond its obvious neatness in a review of the half century? We should recall that it marked a period of peace and tranquility in our international affairs;

* With the collaboration of Professor John M. Firestone, of the College of the City of New York, and members of the Price Division and Mr. Hyman L. Lewis, of the Bureau of Labor Statistics.

that by that year considerable recovery had taken place from the financial crisis of the nineties; that prices had risen and production was increasing; that the new discoveries of gold were about to enlarge the world's supply of money. But we cannot assume for that year, or for any other single year, that it exhibits entirely "normal" relationships. We can only use it as a point of comparison to see how far the nation's economy has come since then, and how the various elements in the economy have adjusted to each other since that time.

Second, why are price changes of such crucial importance in a half century? To me, they are important for their social as well as their economic implications. As prices in producers' markets change, they affect the incomes of the people who live by the production or distribution of particular goods or services, whether they be wage earners, farmers, storekeepers, or owners of other enterprises. To be sure, they do so in combination with other factors: volume of production, levels of costs, etc. In retail markets, they determine how much a dollar will buy in goods and services and hence the real purchasing power of incomes. After a time, the price element in incomes of various kinds is capitalized in the values of equities into which our savings go. These price and income levels also become a basis for various types of credit for long-run contracts and for financial expectations of businesses and individuals. In such circumstances, long-run changes in values may bring relative financial advantage or disadvantage to various groups in the population. In the short run, a rapid change in dollar tags on new output, or on existing inventories, or on values of securities, can give rise to financial problems which can spread in a wave throughout the economy. It is in this general context that I wish to consider prices and values today—sketching broadly as one must in attempting to depict a half century in a half hour.

By mid-century—the year 1950—the prices of commodities commonly made and sold in the United States averaged about 190 per cent higher than at the beginning of the century. The further rise of prices in 1950 and 1951 and the recent advances brought the level of wholesale prices in the autumn of 1955 to about 210 per cent above that of 1900. Broadly speaking, many other dollar values have risen much more sharply than these familiar commodity price indexes indicate.

Valuable as these are, especially in the short run, the records of prices for a limited group of standard commodities cannot be assumed to reflect fully changing values for the whole economy over a long span of time. This is especially important in the twentieth century, which, as two previous speakers have indicated, has brought an enormous increase in the importance of highly fabricated goods, great numbers of new products and services, and exceptional improvements in quality, in style, and in grading, even for so-called "standard" materials which

were virtually the only articles measured in early wholesale price indexes. Many of these changes have made for higher unit costs and higher dollar tags, especially for new products. The opposite is true of the services, some of which—such as gas, electricity, and telephones—now cost less than when they were introduced during the first part of the century, notwithstanding the rise in other costs. This price decline is typical of the price history of many new products and services being sold in ever expanding American mass markets. The changing product-mix of the twentieth century and the rising importance of services compel us to turn for this long-term analysis to more comprehensive measures of the changes in the price element in the American economy. For the most part, we must rely upon the deflators implicit in estimates of the increase in total value of various types of products and of various elements in national wealth and other dollar values in the economy, laboriously computed by many scholars.

To begin with the broadest of these measures: By mid-century, the total dollar value of national wealth in the United States was ten times as high as in 1900, according to Dr. Goldsmith's estimates.¹ The physical assets of the country were about three times as large as in 1900. This implies that prices in 1950 were almost three and a half times as high as in 1900, or a rise of 250 per cent (Table 1).

As would be expected, several of the sectors of the economy exhibit a somewhat similar rise in the price element in values from 1900 to about 1950, as shown in the excellent studies of capital formation made by the National Bureau of Economic Research. In the basic industries alone—manufacturing, mining, agriculture, and building construction taken together—these studies show that the price element in the vastly increased total dollar output of these industries had gone up by about 230 per cent to 1950, about 20 per cent more than wholesale prices of a selected list of products, and about the same as the price rise implied in Dr. Goldsmith's estimate of the rise in total national wealth.

Taking this rise in implicit prices, sector by sector, for such parts of the economy as we can, the advance in products of manufacturing amounted to about 230 per cent, of mining about 205 per cent, and of agriculture somewhat more—about 250 per cent—with crops up 200 per cent and livestock 400 per cent. For new nonfarm construction, the price rise was over 400 per cent to 1950.²

¹ Raymond W. Goldsmith, "National Balance Sheets and National Wealth Statements, 1896-1949" (unpublished).

² See the following "Occasional Papers" (National Bureau of Economic Research): Daniel Creamer, *Capital and Output Trends in Manufacturing Industries, 1880-1948*, No. 41, p. 18; Israel Borenstein, *Capital and Output Trends in Mining Industries, 1870-1948*, No. 45, pp. 68, 70; Alvin S. Tostlebe, *The Growth of Physical Capital in Agriculture, 1870-1950*, No. 44, pp. 35, 44 (for over-all farm prices, Bureau of Labor Statistics); and also Messrs. Grebler, Winnick, and Elank, "Capital Formation in Residential Real Estate, Trends and Prospects" (unpublished manuscript, N.B.E.R.).

TABLE 1
PRICE AND VALUE CHANGES DURING THE FIRST HALF OF THE TWENTIETH CENTURY

	Period Covered	Percentage Increase
<i>Price Indexes</i>		
Commodities:		
Wholesale Price Index, BLS ¹	1900-1950	189
	1900-1955	212
Farm Products Index, BLS.....	1900-1950	253
	1900-1955	205
Consumer Price Index, City Workers' Families, BLS ²	1913-1950	143
	1913-1955	172
Securities:		
Common stocks, Standard & Poors 480 combined ³	1900-1950	180
	1900-1955	518
Preferred stocks, Standard & Poors ⁴	1910-1950	63
	1910-1955	55
High-grade corporate bonds, Standard & Poors ⁵	1900-1950	30
	1900-1955	21
<i>Price Element in the Value of Property</i>		
National wealth ⁶	1900-1949	257
Agriculture; total farm assets ⁷	1900-1950	270
Land and buildings.....	1900-1950	250
Implements.....	1900-1950	227
Livestock inventories.....	1900-1950	412
Crop inventories.....	1900-1950	202
Mining ⁸		
Capital.....	1890-1948	175
Output.....	1902-1948	205
Manufacturing ⁹		
Total assets.....	1899-1948	200
Output ¹⁰	1899-1953	230
Railroad, road and equipment ¹⁰	1900-1949	281
New construction costs ¹¹	1900-1950	430
	1900-1955	510
Weighted average, agriculture, manufacturing and mining production, and construction ¹²	1900-1950	230
<i>Average Hourly Earnings</i>		
Hourly earnings in manufacturing ¹³	1900-1955	960

In this table, not only are commodity and security price changes shown, but also the changes in the price element of other goods and services in such broad sectors of the economy where information was available. Many of these percentage changes were obtained from deflators implicit in value figures given in both current and constant dollars. None of the percentage changes shown, not even the price indexes, are for strictly comparable composites of what they purport to represent, since many of the changes in half a century involve elements that cannot be quantified. Changes in quality design, precision of operation, durability, scope of func-

Now, how have these long-run changes in prices been translated into values of property in various forms? In agriculture, for example, according to Dr. Tostlebe's estimates (*op. cit.*), the total dollar value of farm land and buildings went up by 350 per cent in the first half of the twentieth century, while the price element in farm capital assets increased by about 250 per cent, approximating the rise in prices of farm products.

It is much more difficult to appraise the price element in the changing values of mining equipment and of factory buildings and the land which they occupy. However, it appears from the research of Dr. Borenstein (*op. cit.*) and Dr. Creamer (*op. cit.*), for the National Bureau of Economic Research that the price element in each increased by about 175 to 200 per cent from 1900 to 1950—less than in the case of farm assets and less than the average for national wealth. The rise in the price element of railroad equipment for the first half century, however, was higher, estimated at 280 per cent by Melville J. Ulmer (*Trends and Cycles in Capital Formation by United States Railroads, 1870-1950*, pages 60, 61; no adequate data on rates are available).

tion, basic materials, relative importance are all factors that cannot be reflected in a time-to-time comparison—particularly over so long a period. But insofar as we consider these groupings to be homogeneous, no matter how time has changed their appearance, the foregoing data show the nature and extent of changes in average price or value.

SOURCES:

¹ Latest date, November, 1955.

² Latest date, October, 1955.

³ Latest date, September, 1955.

⁴ *Ibid.*

⁵ *Ibid.*

⁶ Raymond W. Goldsmith, "National Balance Sheets and National Wealth Statements, 1896 to 1949." (Derived from Tables W1 and W3; unpublished manuscript.)

⁷ Alvin S. Tostlebe, *The Growth of Physical Capital in Agriculture, 1870-1950*. (Derived from Tables 6 and 8, pages 36, 44.)

⁸ Israel Borenstein, *Capital and Output Trends in Mining Industries, 1870-1948*. (Derived from Tables A-1, A-2, A-4, pages 66-70 and unpublished data.)

⁹ Daniel Creamer, *Capital and Output Trends in Manufacturing Industries, 1880-1948*. (Derived from Table 2 and unpublished data.)

¹⁰ This figure was estimated from the increase in the value added by manufacture divided by the change in the volume of manufacturing production, as estimated by the National Bureau of Economic Research from 1899 to 1919 and by the Federal Reserve Board from 1919 to 1953.

¹¹ Melville J. Ulmer, *Trends and Cycles in Capital Formation by United States Railroads, 1870-1950*. (Derived from Table A-1.)

¹² Grebler, Winnick, and Blank, "Capital Formation in Residential Real Estate, Trends and Prospects, 1900-1950" (unpublished material). This was brought up to 1953 by using the change in the U.S. Department of Commerce's composite construction cost index from 1950 to September, 1955.

¹³ A weighted average of indexes of agriculture, mining, manufacturing, and construction costs. The weights, derived by Frederick C. Mills for his study, *The Structure of Postwar Prices*, are averages of 1927 and 1931 estimates of value-added, and are agriculture 22, mining 7, manufacturing 59, and construction 12.

¹⁴ U.S. Department of Labor, Bureau of Labor Statistics, "Average Hourly Earnings for Production Workers in Manufacturing, 1923-1955"; average hourly earnings for all manufacturing industries, 1900-23, from Paul H. Douglas, *Real Wages in the United States, 1890-1926*. The latest data are for November, 1955.

In the absence of definitive data on profits of these enterprises—both partnerships and corporations, large and small alike—it is difficult to interpret these figures in terms of capitalized income. They may imply merely the lack of an active market in manufacturing and mining properties, which would make possible current estimates comparable to the market for farm land. However, the values of common stocks, according to Standard and Poor's indexes (Security Price Index Record—Combined Index; 480 stocks), also rose by 180 per cent from 1900 to 1950, or about the same as the price element in manufacturing and mining properties.

For urban real estate—the repository of such a large share of the nation's invested wealth—it is exceedingly difficult to obtain data on the rise in prices. Some indication of this change can be found in the yet unpublished manuscript of Messrs. Grebler, Winnick, and Blank entitled, "Capital Formation in Residential Real Estate, Trends and Prospects," for the National Bureau of Economic Research. Using the index of construction costs for new residential construction employed in this study between 1900 and 1950, it appears that the rise in new urban real property prices was substantially greater than the rise in the price of farm real estate to 1950 or about 430 per cent. The authors stated that "the construction cost index conforms very closely to the price index (for residential real estate), corrected for depreciation. It would appear, therefore, that for long-term analysis the margin of error involved in using the cost index as an approximation of a price index cannot be very great." (*Ibid.*, page C-24.)

Finally, there is the case of high-grade corporate bonds and preferred stocks, intended *not* to follow the trends of commodity prices and equities in general but to provide "security" of investment. They had risen, between 1900 and 1950, by 30 per cent for bonds and 63 per cent for preferred stocks (*ibid.*, Preferred Stock Price Index and High Grade Corporate Bond Price Index).

Thus, in summary, if we look back over the half century from 1900 to 1950, we can conclude:

First, there has been a rise of about 250 per cent in the implicit price factor in property values in the American economy, while standard commodity prices were rising by a little less than 200 per cent. Thus, in 1950, the real value of the dollar, whether used to buy property or goods, was roughly one-third of what it was in 1900.

Second, by 1950, most of the basic sectors of the economy—agriculture, mining, and manufacturing, and even values of common stocks—had experienced about the same percentage rise in prices since 1900, with certain specific exceptions.

Third, by 1950, the values of property associated with changes in the prices of products had adjusted to those price changes in large meas-

ure. Unit values of land and buildings, of equipment, both for agriculture and for industry—and of common stocks—were not far out of line with the average rise in prices of their products, insofar as they can be measured from 1900.

This historical review presents an apparent paradox: a long-run increase in prices in the face of both the phenomenal increase in output which the previous speakers have described and the sharp cut in the amount of human effort required to produce a given amount of goods. The clue lies in the equally remarkable and even greater rise in wages and other forms of income which has been attended by a broadening of purchasing power and a consequent sharp rise in consumption levels. We turn, then, from the relationships between prices of products and values of assets to the relationships between current income and the long-run decline in the purchasing power of the dollar.

National income in standard dollars was some three and a half times greater at mid-century than fifty years earlier, whereas total employment rose less—about two and a half times. Average hourly earnings of factory workers were up 960 per cent during these fifty years, while city consumer prices only rose a little over 200 per cent.

Obviously, then, the average employed individual has received an increase in income which was large enough to offset by a wide margin the declining purchasing power of the dollar. The American twentieth-century-style inflation thus has not been a painful one for the vast majority of the people; many have not even been really aware of it.

In addition there has been a substantial shift in the distribution of income, although figures for the early decades of the century are either unavailable or too limited to document this point thoroughly. The important point is that a larger share of today's much larger pie is being very widely distributed among the total working population—much more widely than the smaller pie of a half century ago. This widening of the ability to buy in the more recent decades has helped make it possible for demand to rise in keeping with our ability to produce; thus permitting prices to stabilize at successive plateaus. Otherwise, the peaks and troughs of demand in recent years might well have been much sharper.

In discussing rising prices and incomes, it is often difficult to tell which is the chicken and which the egg, much less which came first. This past year, for instance, we have seen many instances in which price increases have been attributed to wage increases; there have even been cases in which price increases have been for the purpose of increasing profits so that capital facilities could be expanded. On the other hand, there have been other recent years when wage increases were attributed to rising consumer prices.

This continuing interplay of costs is, of course, nothing new. During

both world war periods, wages moved up more strongly than did average consumer prices. During other periods, such as in the twenties, factory wages edged slowly upward, while consumer prices drifted downward. Over a long enough period of time, the full-scale balancing out of the war-shortage changes in prices and incomes has always ended with a rise in real labor income, reflecting primarily the rise in the productivity of the private enterprise economy as a whole. There are always some divergences as between periods, however, because of such factors as changing product-mix and the rising proportion of wage and salaried workers in the total labor force.

Of course, in using a price index to measure changes in real income, we must remember that no index can measure the vast improvements in levels of living which have resulted from the economic developments of the past half century. No index can pick up the difference between the kitchen of 1900 with its wood or coal-burning ranges, its icebox and its sadiron and today's gadget-filled kitchen, nor does it show the great increase in services, in recreation, and in leisure time which have been among the greatest rewards of our rising productivity. The contents of the housewife's market basket in 1900 were very different than the commodities with which she fills her pushcart in today's supermarket. Goods are of infinitely greater variety, more fully processed, and, despite occasional exceptions, of better quality.

Perhaps, therefore, it might be well to look for a moment at some familiar values which make up our standard of living. How long does a man have to work to buy certain specific goods? It now requires very much less work time to earn the simple necessities than it did in the nineteenth century. For example, in 1890, it took a factory worker nineteen minutes of work to earn the cost of a pound of bread; in 1954, it required only six minutes. In 1890, it required ninety-five minutes to earn a pound of butter; in 1954, it took only twenty-four minutes. The amount of work time to buy a pound of sugar, a quart of milk, and a dozen eggs is now roughly only one-third as much as in 1890. Work time required to buy clothing has also dropped drastically. In 1890, a little over ten hours of work time was required to pay for the weekly clothing purchases of the average industrial worker's family. In 1954, only six hours of work were necessary for a weekly clothing allowance for a family of the same size, despite the fact that since World War I, clothing prices have almost tripled. Examples like this could be multiplied. Thus, in summary, if the half century is reviewed in terms of higher, more widely distributed incomes, enormously increased production and productivity, the higher general level of living, despite the tripling of prices, becomes understandable.

This historical review suggests that in a nation which is rapidly grow-

ing and which has large and sharply varying defense expenditures, primary concern in price analysis should be with the factors which cause such drastic changes in the price level and with the degree of adjustment of values to changing prices. It puts into perspective our concern over small price changes such as we are having today. It also emphasizes the fact that over this fifty-year period the ownership of salable properties, of commodities, and of common stocks—where values are determined eventually by their income—has proved best for the maintenance of buying power derived from investments. This is for the long pull. At any one moment, of course, particular values may be speculative or out of line. And it must be remembered, as we shall now see, that there have been periods of rapidly rising and declining values in this half century in which fortunes have been made—and lost.

This rise in prices and values in the twentieth century has by no means followed a smooth and even course. As in our earlier history, there have been sharp fluctuations associated with wars and the readjustments—often painful—which have followed them. In the nineteenth century, the United States was involved in a war about every forty to fifty years. In the twentieth century, the span between World Wars I and II was less than twenty-five years. The familiar record of wholesale prices from the early nineteenth century mirrors these changes. It shows not only the price inflation of the war years but indicates, too, that every war has been followed immediately by a postwar period of further rapid price inflation, because of the continued scarcity of goods and the comparative abundance of money and credit. It appears, historically, to require a considerable period—often a decade, including the war and immediate postwar period—for the new and higher price levels, with attendant higher wages, costs, and profits, to become embedded in other values; that is, to be reflected in the dollar values of land, buildings, and common stocks and upon credit instruments of various kinds. Gradually, these new price-cost-credit relationships are sufficiently well established to be regarded as normal, and financial expectations are based upon them.

Historically, again, these higher values failed to be fully sustained. Each postwar period of price boom in the United States in the nineteenth century and through World War I was abruptly halted with a steep price decline, especially for raw materials traded on organized exchanges, followed by declines in values of common stocks and of property. The severity of the drop depended, in considerable part, upon whether the preceding rise in commodity prices and other values had been speculative and out of proportion to peacetime sustainable demand. In the recession and depression phases of the business cycle which followed these market breaks, wholesale prices have not always

returned to the level which prevailed before the preceding war period. They fell to a lower level in the eighties and nineties—periods of greatly increased output—but after World War I they did so only for a very brief period and retail prices never did. The level at which prices settled after a postwar decline has depended upon the volume of output in relation to effective civilian demand, the rise in productivity in the interval, and, in no small degree, upon the availability of money and credit.

It is in this perspective that we shall review the cyclical behavior of prices and values in the twentieth century. Professor Frederick C. Mills, in *The Structure of Postwar Prices*, prepared in 1948 for the National Bureau of Economic Research, has compared price movements for various sectors of the economy for three periods between 1914 and 1947.

The outbreak of World War I in Europe followed more than a decade of slowly rising prices and considerable prosperity in the United States, especially in agriculture. In the absence of statutory controls such as were imposed in World War II, wholesale prices for products of farms, mines, and factories all more than doubled from 1914 to their postwar peak in 1920, and construction costs went up by 165 per cent, according to Professor Mills. Retail prices paid by city workers' and farmers' families for family living also doubled. Weekly wages for factory workers rose somewhat more than the cost of living from 1914 to 1920, and net farm income went up by 80 per cent (Table 2). There was considerable speculation in commodities and in property, especially in farm land, which, together with farm credit, advanced sharply to new high levels in 1920, as did other forms of credit outstanding. However, prices of common stocks remained virtually unchanged from 1914 to 1920.

In the spring of 1920, there came one of those sudden breaks in world markets for raw materials, which signaled the beginning of a sharp recession in business activity. In a period of about a year, there was an exceptionally drastic drop of about 50 per cent in domestic farm prices, followed more slowly and somewhat later by smaller declines in prices of manufactured goods. Values of real estate, especially farm real estate, followed these downward trends, and common stock prices declined by some 40 per cent. The cost of living dropped about 20 per cent for city families and somewhat more for farm families, but never returned to pre-World War I levels.

The twenties presented a study in contrasts. There was a prolonged agricultural recession, with wartime inflated farm capital values and loans out of line with lower farm incomes, notwithstanding a rise in farm prices of 20 per cent from their very low levels of 1921. Farm

bankruptcies, foreclosures, and rural bank failures ensued. Industry, on the other hand, was very prosperous, with greatly increased factory and mining output, rising productivity, and high profits. Wages and salaries, however, rose very slowly, with average factory wage rates up by only 10 per cent. A vast construction boom spread through the cities, and common stock prices rose by an unprecedented 245 per cent. Commodity prices, meantime, moved within a narrow range after their initial recovery and by 1929 averaged lower than in 1921. Dr. Mills estimates that prices of manufactured goods went down by 8 per cent, at a time when manufacturing productivity was increasing by 40 per cent and output was rising by 90 per cent. As the urban boom pro-

TABLE 2
CHANGES IN PRICES AND VALUES OF MAJOR ECONOMIC SECTORS

Sector	Total 1900-55 ²	1914-20 ¹	1921-29 ¹	1938-47 ¹	1947-55 ²
Total production.....	+260	+135	0	+101	+14
Agriculture.....	+270	+109	+20	+187	-10
Mining.....	+205	+117	-4	+60	0
Manufacturing.....	+230	+141	-8	+79	+19
Construction.....	+510	+165	+3	+76	+36
Hourly wages, manufacturing.....	+960	+149	+10	+97	+56
Common stocks.....	+518	+1	+245	+39	+163

SOURCES:

¹ Per cent changes for 1914-20, 1921-29 and 1938-47 taken from Frederick C. Mills, *The Structure of Postwar Prices*, page 34.

² Per cent changes for 1947-55 and 1900-55, estimates by Bureau of Labor Statistics.

ceeded and common stock prices climbed, many economists interpreted the stability of commodity prices to mean that there was nothing wrong with the business situation. Looking back, we wonder whether, considering the great expansion in production in those years combined with the comparatively slow build-up of consumers' buying power, they might not have expected commodity prices to go down by more than they did.

The history of the break in the stock market in 1929 and the ensuing depression is too well known to require recounting here, and I am principally concerned with the more recent inflationary period of World War II and its aftermath. The years from 1938 to 1947 brought the second enormous increase of the twentieth century in the level of prices and values. Commodity prices approximately doubled. However, during the war years, prices were held in line far better than during World War I by a variety of restrictions: control of scarce commodities, rationing of consumer goods, controls on prices, rents, and wages. For this reason, a good part of the price rise took place after the end

of the war when, following the removal of most governmental controls, pent-up demands, vast reserves of buying power, and scarcities of available goods combined to push prices up with great rapidity.

During 1938 to 1947 as a whole, prices of manufactured products and the costs of new construction each rose by nearly 80 per cent and the products of mines by 60 per cent. Farm prices advanced more than twice as much, however, going up by nearly 200 per cent from their relatively low prewar levels. The advance in consumers' prices for city workers' families was fairly moderate, 58 per cent, partly because of the relatively slow rise of the cost of services; and prices paid by farm families (compiled on a different basis) rose by 94 per cent.

Wages for factory workers doubled from 1938 to 1947 and wages in other occupations also increased substantially. Net farm income rose, however, by 300 per cent. Thus, real incomes increased very greatly for farmers and substantially for most other workers except those whose wages and salaries ordinarily lag, such as the professional and sub-professional occupations.

During these years, prices of common stocks rose moderately, as they had done in World War I—in this case by only 40 per cent. However, real estate values increased substantially, approximately doubling for city residential properties—very difficult to measure, to be sure—and for farm land. However, the increase in farm credit was moderate and the rise in farm prices and incomes far outran the rise in property values. Thus the period from 1938 to 1947 was one of very uneven price movements, with the several sectors of the economy affected very differently by the impact of wartime controls and wartime demands. It was also a period of little commodity or stock speculation, in which there had not been adequate time for the new and higher price levels to become capitalized in other values.

The years since 1947 present an entirely different story. The post-war adjustment had scarcely begun when a new war crisis broke out, setting off a sudden speculative spurt and a new chain of price and income reactions. When it shortly became clear that hostilities would be limited to the Korean area, a settling-down process began. We are now in the atmosphere of a cold war, so that the readjustments of prices have not followed what once was the normal postwar pattern. Defense demands for materials which are important in the civilian economy, together with occasional flare-ups in scattered corners of the globe which furnish some of our basic raw materials, have combined to place a very high price floor under many raw industrial materials.

In addition, and for reasons not connected with the price situation, price changes have been moderated by increasing credit, vast consumer buying, and the so-called "rolling readjustment" in which only a part of

the economy has been affected by changes while the other sectors have either held steady or moved in the opposite direction. This, no doubt, is one of the facets of modern monetary policy—but I shall have to leave that aspect for others to develop.

Our present concern is how these various influences have affected the prices and values as of today. As we have seen, the all-out demands of the second war absorbed much more of our resources than did World War I, and the various controls on prices, wages, rents, and supplies fell with unequal force upon various sectors of the economy. In these circumstances, it is scarcely surprising that since 1947 those slow-moving prices and values which rose least during the war and early postwar years have been catching up. Those which rose most—like prices for farm products—have slowed their advance or have declined, especially in the latter part of the period. Margins between raw materials and finished goods have widened, with rising costs of distribution. Services, transportation costs, the utilities, rents—always slow to move—have gone up almost continuously.

Considering the inflationary effects of the Korean situation and the defense program, the price rise from 1947 to 1955 has been relatively modest—about 15 per cent for wholesale prices and 20 per cent for city consumers' prices. The wholesale price measure shows that all economic categories except farm products and foods have shared in the price rise. Prices of farm products have gone down by a net of 10 per cent, following their rise of over 200 per cent up to 1947. Prices of raw materials as a group have also declined, while prices of manufactured products have risen by 19 per cent, with steady and persistent increases both in producers' and consumers' durable goods, which had moved upward comparatively little in the war and early postwar years. (These developments are shown in detail in the new economic sector indexes of wholesale prices compiled by the Bureau of Labor Statistics.) We do not have enough prewar detail to be certain whether prices of manufactured goods have risen as much as have the prices of industrial raw materials. However, from such data as we have concerning a limited number of highly fabricated goods, it appears that, relative to prewar, prices of raw materials in 1955 are still higher than prices of manufactured goods.

These years have also brought a substantial and continuous increase in the cost of services, many of which enter into the cost of fabrication and distribution, while others affect the individual family budget. Freight rates, for example, went up almost 40 per cent from 1947 to 1953.

The rise in the Consumers' Price Index also has reflected the slow catching-up process, particularly the steady rise in rents, in services

(including medical and personal care), local transportation, and others. The cost of services rose nearly 40 per cent and rents practically as much in this period, while commodity prices went up only 13 per cent. During the most recent years, the readjustment has slowed down considerably: rents have about leveled off, the rate of increase in other types of services has diminished, and a number of commodity prices—not only food but apparel and durable goods—have declined at retail. These divergent trends have resulted in a remarkably stable price level for city workers' families during the past two years. Since at the same time workers have been receiving substantial wage increases, real wages have gone up very sharply. Real factory hourly earnings, on a straight-time basis (that is, earnings after adjustment for changes in consumer prices and for overtime) rose 27 per cent between 1947 and 1955, with a substantial portion in the last two years.

We thus seem to have entered a period in which the various post-World War II and post-Korea distortions in the price structure have in considerable measure been balanced out on a new plateau. It appears clear, from comparisons of the rise in the price element in values of real estate—both farm and city—that much of the commodity price rise has already been translated into the capital structure. Farm land values, for example, are up by 35 per cent. Construction costs have gone up more than have commodity prices—some 30 per cent. There has been a particularly striking rise in the price of common stocks, which are up by more than 160 per cent as compared with 1947. Such leapfrogging, of course, is to be expected in a free economy, and it is not possible at any one time to pin point the amount by which any one factor is out of line with others. Nevertheless, it is clear that many of today's prices, both for commodities and for capital assets, depend on a total demand which presses hard against productive capacity. Prices could change considerably for some kinds of goods and services if demand were not maintained at extremely high levels, and capital values, to the extent that they depend upon the new high level of prices, are therefore vulnerable.

This would bring me into the final part of my assignment—to look into the future—but one of the conclusions of this paper makes it impossible to do so. It is that great changes in the price level come because of the readjustment to wars and their aftermath and because of basic changes in effective civilian demand, and that values are adjusted to those changes. But we have never lived in a sustained cold war period before and this aspect of today's situation would alone be enough to deter most of us from attempting to predict that prices, in the future, will follow the course they have taken after other wars.

We are in a period of readjustment which is not yet concluded but

in which many major factors have come into balance. Rates for many services, particularly those which are under local governmental control, move with a long-time lag and are likely to rise further, particularly in view of recent wage increases in industry, which usually spread gradually into other lines of activity. So far as commodity prices are concerned, there should be no great change in the general price level in the immediate future, while the capital values which have risen most sharply, such as common stocks and real estate, need careful continuing appraisal.

DISCUSSION

ROBERT FERBER: In listening to Mrs. Wickens' paper, which possesses a great deal of valuable information, a few points occur to me which would seem worth mentioning.

The differences in the price changes between 1900 and 1950 are often quite small, and may well be due in certain instances to the use of the particular years 1900 and 1950 as the bases of comparison. To minimize the effect of erratic influences on prices due to unusual events in particular years, it would seem preferable to make the comparisons between averages of several years' prices at each end of the period instead of between single years in each case. This will not, of course, entirely remove such effects but should greatly reduce their relative importance in particular instances.

Mrs. Wickens notes that less work time is needed now to earn the simple necessities of life than in 1890. This is certainly true if the simple necessities of life in 1890 were the same as those looked on in this manner today. However, "simple necessities" currently would include a much larger variety of goods than in 1890—partly because of higher standards of living and partly because of progressive loss of self-sufficiency. In a cost-of-living sense, therefore, such a comparison between work times in 1890 and currently is likely to be much less favorable.

At least one of Mrs. Wickens' points deserves considerably more emphasis than has been given to it, especially in view of its bearing on current conditions. It is that the lesson of the twenties shows us that stability of commodity prices does not necessarily validate the soundness of the current business situation.

The essence of Dr. Mack's paper, it seems to me, is that consumption is not necessarily the passive force in the growth of national output as has hitherto been supposed, but rather that it may really be a basic factor contributing to economic growth. This is because of an unusual interest in consumer goods by Americans which led them to strive for an ever higher plane of living, and this in turn has helped to lead to a greater flow of goods, higher productivity and resourcefulness, and to higher levels of income than would otherwise be the case.

Why this greater striving in this country than elsewhere for more and better consumer goods? Dr. Mack has a seven-part answer to this question: resourcefulness and independence of the early immigrants, egalitarian society, social mobility, respect for those who gained practical success, the power (alas!) of women, desire for conspicuous consumption, the ever changing variety of goods and their appeal to consumers. These factors combined to induce more people to work, people to work harder, to risk more and, as a result, lead to further growth in national output. I might add parenthetically that the picture suggests not so much that American men are willing to work harder but rather that the women are able to get the men to work harder to get them the goods so that the women don't have to work as much!

In reviewing this paper, or any other paper of this sort, it seems to me that two basic questions have to be raised: (1) How sound is the theory as such? (2) What evidence is there to support the theory?

The view that consumption may exert some influence on trends and fluctuations in income is not new. It is widely accepted, for example, that consumption was a major force, if not the major one, in keeping the 1948-49 recession as mild as it was and in promoting the subsequent upswings in both 1949 and in 1954. In current reviews of business prospects, consumer credit is invariably mentioned as a basic factor and most of this is, of course, consumption expenditures. Even in Keynesian and other theories of the thirties and early forties, consumption could be said to play a dominant role, for if consumption plus investment exceeded income, we had pressures on the upside, and if these two factors did not come up to income, we had deflationary pressures. In earlier theories, too, consumer demand for goods—which is after all what consumption expenditures reflect—was a central force in determining income and employment.

Where Dr. Mack goes beyond these views is in her emphasis on the underlying importance of consumption expenditures as motivating, it seems, all other forces contributing to growth in the economy. From one point of view, this is a tautology. Obviously if there were no demand for goods, there would be no economy to speak of, and in this sense there is no questioning this view. Where question does arise, and where the real contribution of this paper may be, is in the assertion that the desire for consumption goods, as distinguished from the ability to buy consumption goods, has been so much greater in this country than elsewhere. Really, two distinct questions are involved here: (1) Has the desire for consumer goods been greater in this country? (2) If yes, has this served to increase incomes above what they would otherwise have been?

Affirmative answers to both of these questions would be required to substantiate Dr. Mack's views. Also, perhaps needless to say, these are two very difficult questions to answer. And in this respect, I am sorry to say, Dr. Mack does not give us as much help as we might want. Her paper reads convincingly; it is well written. The emphasis, however, is admittedly on plausible argumentation and on marshaling such evidence as would seem to support her case rather than on formal organization of the theory for testing purposes and consideration of pros and cons on each point. Of course, this is not an easy task and perhaps this was not the occasion for Dr. Mack to attempt it. Nevertheless, had she attempted it, I suspect she would have come up with a more balanced picture of the situation and a more complete one.

The picture also would have been a more complex one as it would have included at least consideration of factors which might account for the same phenomena noted in her paper if not as well of the possibility of interaction effects between a number of such factors. Perhaps the most obvious example is resources. Although Dr. Mack does not mention it explicitly, I am sure that she, as well as everyone else, is aware that without our abundant resources this country would not have grown anywhere near as much as it has. But, we may ask, to what extent might this greater desire for goods in this country,

assuming that this is true, be simply a manifestation of the availability of these resources and the knowledge that relatively little effort—at least relative to the immigrant's homeland—was required to improve one's lot through exploiting these resources? And to what extent might the presumably greater resourcefulness and independence, and even social mobility, of the early settlers in this country than of people elsewhere be due largely to the presence of these resources? Can one say that if a randomly-selected group of people from among those remaining in Europe had been plucked out of their homes and dropped suddenly on this continent that the same thing might not have happened? Of course, we know from our history books and from Dr. Mack's paper that the early settlers were more or less a picked lot in many ways and more eager to improve their lot. But I wonder. Certainly lazy people would not be likely to emigrate from their native land, but on the other hand neither would successful people—a group that, one would expect, included many of the better and more resourceful men in a country even with a tradition-bound aristocracy.

All in all, it seems to me that it remains to be established whether the desire for consumer goods in this country has indeed been greater than elsewhere, other things being equal. As between nations, other things are certainly not equal, and this is a major, if not insuperable, difficulty. For to subject Dr. Mack's interpretation to a test, we must first construct a theoretical framework incorporating these other factors, setting forth a rigorous set of hypotheses and indicating the nature of the tests that have to be made. If one survives this stage, one's headaches really begin: getting the necessary data and carrying out the tests.

Now that I have indicated what Dr. Mack might do for the next five years, let me conclude by returning to the two basic questions I raised at the start. My answer to both of them is the same: I reserve judgment. As presently formulated, the theory is incomplete and not well suited to analytical purposes. In this formulation, as Dr. Mack herself admits, there is about as much evidence for as against it, which clearly does not speak too well for its validity. My own personal feeling, however, is that when reformulated, and perhaps narrowed down to something less than an over-all explanation of economic growth, the evidence will be overwhelmingly in favor of it. Such a reformulation might consider the role of natural resources and factors on the production side in relation to income and the desire for goods in contributing to growth. If I have succeeded in goading Dr. Mack to undertake such a task, I will feel that I have done my good deed for the day. In any event, we owe her a vote of thanks for a highly interesting and stimulating paper.

ECONOMIC GROWTH III. INCOME DISTRIBUTION ASPECTS OF EXPANDING PRODUCTION AND CONSUMPTION

SAVING, INVESTMENT, AND STABILITY

By WILLIAM A. SALANT
Brandeis University

I. Scope of the Present Paper

The subject assigned to me by the President of our Association (the distribution of income between taxes and nontaxes, and among consumption, saving, and capital formation) obviously takes in a lot of territory. He has indicated that the emphasis should be placed not on the first split, between taxes and nontaxes, but rather on the relation among consumption, saving, and capital formation. I shall accept this suggestion. I shall further limit the field by concentrating primarily on the saving-investment process and its relation to economic growth and stability.

The saving-investment process impinges on the objectives of growth and stability in two ways. I start out with the familiar proposition that realized saving and investment, although not the same thing, are (when appropriately defined) necessarily equal. Now the first way in which the saving and investment process affects growth and stability involves the level at which saving and investment are equated, while the second has to do with the process by which they are equated.

As to the first, it is clear that the rate of growth (of actual production) of an economy is limited by the expansion of productive capacity. The growth of productive capacity, in turn, is determined, among other things, by the rate of capital formation. The rate of growth might be held below what some might consider a desirable level if investment prospects do not appear bright to those in a position to make investment decisions, or if the flow of saving put at their disposal is insufficient to allow them to take advantage of those prospects.

The process or mechanism by which saving and investment are equated is perhaps more relevant to price stability and to the rate of employment of productive capacity than to the long-run growth rate. If saving, at the full employment level of output and the going level of prices, is not sufficient to finance the desired amount of capital formation, then it may be that some of the investment is choked off, and the growth of the capital stock is less than it would otherwise be. Alterna-

tively, the investment may be undertaken anyway, and the volume of saving (i.e., real *ex post* saving) increased by a process of price inflation. On the other hand, if the full employment level of saving (i.e., at the maximum level of employment compatible with price stability) exceeds the desired level of investment, the equating of saving and investment may entail reduced employment, falling prices, or both.

In the remainder of this paper, I shall deal with the second problem, the impact of the saving-investment mechanism on maximum employment and price stability, rather than the first problem, the impact of the rate of saving and capital formation on the rate of growth of the economy. I have two reasons for this distribution of emphasis.

In the first place, the economy seems to have reached a stage at which it generates growth, or at least innovation, almost automatically. The current rate of technical progress and the high level of expenditures on research suggest that we need have no concern over technological stagnation for some time to come. We can also, I believe, expect the economy to generate without difficulty a substantial volume of the saving required to apply these developments, largely from sources internal to business. (In this connection, it must be remembered that replacement expenditures as well as new investment can contribute to improvement in the quality and productivity of capital equipment.) Our institutions and behavior patterns seem to be stacked in favor of innovation and change. No longer does the innovator have to fight every inch of the way against strong resistance, in the manner described so vividly by Schumpeter. If it were not a contradiction in terms, one might almost say that innovation takes place within the circular flow.

My second reason for being more concerned with stability and high employment rather than growth is that the standard of living in the United States has now reached a level at which the sheer increase of physical output can no longer claim the urgency which it has possessed throughout history, and which it still possesses in most of the world. The problem of allocation of output is, at the moment, far more urgent, because our habits and institutions favor the provision of certain kinds of output and capital at the expense of others. To cite one obvious example, we can achieve the remarkable feat of producing eight million cars in a year and selling most of them, but we have great difficulty in providing the roads to drive them on (or, alternatively, in reducing congestion by charging the full social cost of automobile transportation to its consumers). Anyone who has had to struggle through rush-hour traffic to get to this meeting will have a vivid sense of the divergence between the marginal private cost and the marginal social cost of transportation services.

The difficulties we are experiencing in expanding and even maintain-

ing our education facilities provide another example of the problem of social priorities, to which Professor Homan addressed himself in the first "Economic Growth" session. I conclude that, until some way is found of sorting out the social priorities better, the further expansion of output and capital along existing lines is of secondary urgency.

II. *Who Saves and Invests?*

I turn now to the effect on employment and price stability of the process by which saving and investment are equated. Much of our thinking on this subject is based on the thesis that the act of saving and the act of investment are performed by different people and for different reasons. This dichotomy between saving and investment has played a crucial role in the English-language literature for a generation, and it goes back further in the Swedish and Austrian. One concise statement of it is worth quoting: "Saving is the act of the individual consumer and consists in the negative act of refraining from spending the whole of his current income on consumption. Investment, on the other hand, is the act of the entrepreneur," and, the passage goes on to say, involves a decision to spend rather than to refrain from spending. (The passage quoted is from Keynes, *A Treatise on Money* I, page 172. The treatment of saving and investment in the *Treatise* is compared with that in the *General Theory* by Professor Lintner in his paper on "The Theory of Money and Prices," *The New Economics*, edited by S. E. Harris, pages 522 ff.)

The significance of this dichotomy between saving and investment can be brought out if we consider what the situation would be if decisions to save automatically accompanied decisions to invest, and vice versa. In that case, a decision to increase saving and investment would not involve a change in total spending, but only a shift from consumption to investment spending. But if the two acts are sharply separated, then a decision to increase investment is likely to mean a net increase in aggregate spending, and a decision to increase saving is likely to mean a net decrease in spending.

If saving and investment decisions are made independently, then the equality of saving and investment, although inevitable, is not automatic. Instead, some mechanism or adjusting process is required to bring it about. (I use the term "adjusting" rather than "equilibrating" because the realized equality may represent, in some sense, a disequilibrium position.) In this equalizing mechanism, one or more adjusting variables serves as the mediator between saving and investment. The adjusting variable may be the interest rate (or, more precisely, the complex of factors that determines the cost and availability of funds). It may be the price level, operating through Pigou effects on the

real value of money assets, or the rate of change in prices, in inflationary or deflationary situations. Finally, it may be the level of output and employment.

We shall not be concerned with the character of the adjusting process, nor with the relative efficiency of the different adjusting variables in bringing about the equality of saving and investment. We shall simply note that the need for an adjusting process involves the risk of instability in prices and output and of underemployment levels of output.

Instead, we shall examine the two premises on which the alleged need for an adjusting process is based: that saving and investment are performed by different people and for different reasons. We begin with the first part of the statement: that savers and investors are different people.

In its simplest form, this statement suggests a picture of the economy in which all saving takes place in the personal sector and all investment in the business sector. The personal savings are made available for investment, primarily by corporations, either directly through security issues or indirectly through financial intermediaries such as banks and insurance companies.

This, I believe, is the picture suggested by the passage from Keynes's *Treatise* quoted above. Everybody is aware, of course, that it is an oversimplification. We shall glance at the available statistics to see to what extent it is applicable to the economy of the United States today. We may anticipate the results by pointing out that the picture contains three major flaws: (a) the corporate sector saves as well as invests; (b) the personal sector invests as well as saves; and (c) the line between the personal sector and noncorporate business is blurred and fuzzy. It might be added that the picture makes no provision for government, but this omission can be remedied easily by ignoring the distinction between current and capital expenditures of governments and treating the net surplus, appropriately defined, either as positive saving or negative investment.

As regards the corporate sector, it is well known that, on a gross basis, corporations obtain most of the funds required for capital purposes from internal rather than external sources. In the eight years 1946-53, for example, gross expenditures by all corporations for plant and equipment and expansion of inventories are estimated at 181 billion dollars. No less than 140 billion dollars of this amount, or 78 per cent, was obtained from internal sources, 78 billion of it through capital consumption allowances, and 63 billion from retained earnings. This left only 41 billion dollars, or 22 per cent, to be raised externally. Even if saving and investment are put on a net basis, retained earnings provided 61 per cent of the 103 billion dollars required for net invest-

ment.¹ The relative importance of internal funds does not appear to be a recent or temporary development. There are, of course, wide variations among industry groups in the importance of internal and external financing, public utilities being notably more dependent on external funds than manufacturing companies.

We turn now to what we shall call the personal sector, although, it should be recalled, it includes noncorporate business and nonprofit institutions. We find that in the period 1946-53, net personal saving is estimated at just over 100 billion dollars, of which it was possible to identify 95 billion by type. Eleven billion dollars of this represented the increased equity in nonfarm dwellings, plus the real property of nonprofit institutions. (In fact, the figures indicate that most of this amount consisted of the holdings of nonprofit institutions rather than individuals' equity in houses.) The remaining 84 billion dollars consisted of increased holdings of financial claims less the increase in consumer debt. The principal increases in claims were in bank deposits, securities, and life insurance. Equity in unincorporated business happened to remain unchanged in this period, a 6 billion dollar increase in nonfarm equities offsetting an equal decrease in the equity in farms.

These figures might appear to support the simple picture, which envisages personal saving as consisting mainly of the purchase of financial assets, the proceeds of which are passed along to the other sectors of the economy. This impression, however, would not be correct.

The error involved in this conclusion arises from the identification of the equity in houses with net investment in houses. We noted that net saving in the form of increased equity in houses was small. But this was true, not because net investment in houses was small, but rather because it was financed primarily by borrowing.² In fact, net investment in houses (plus institutional buildings) amounted to 54 billion dollars, while the increase in mortgage debt was 43 billion. If we offset the latter against financial assets rather than against investment in houses, we find that 57 per cent of the net saving of the personal sector took the form of net investment in houses and only 43 per cent consisted of the net increase in claims, after deducting mortgage and consumer debt.

¹ All estimates in this section are derived from Edward F. Denison, "Saving in the National Economy," in *Survey of Current Business*, January, 1955. The relation between personal saving and personal investment in tangible assets is also discussed in Irwin Friend, *Individuals' Saving*. In the corporate figures cited above, the attribution of all the funds derived from one class of sources (internal) to one class of use (investment) implies that all other uses of funds (primarily increases in short-term claims) were financed entirely from external sources. The justification for this procedure is largely that it is reasonable to offset short-term claims against short-term liabilities, leaving all other uses of funds to be financed by internal sources and sales of securities.

² This statement is somewhat misleading because, while revaluation of existing assets is scrupulously excluded from both saving and investment estimates, a part of the increase in mortgage debt was due to purchases of old houses that had appreciated in value. See Denison, *op. cit.*, p. 20.

We might add that, in this period, the net investment performed by unincorporated business was 26 billion dollars, which happened to be financed entirely by borrowing. We did not deduct this debt from the change in financial assets of the personal sector. If we consolidate unincorporated business with the personal sector, we find that net saving amounts to 102 billion dollars, net investment to no less than 80 billion, leaving only 15 billion in the form of increased financial claims, representing the flow of saving to other sectors, with 7 billion unaccounted for. In each of the years 1947-50, net investment of the personal (plus unincorporated business) sector exceeded its net investment, so that savings were drawn from other sectors.

We can complete the picture for the postwar period by noting that government saving, on a national accounts basis, amounted to 26 billion dollars, represented entirely by social insurance funds, while "net foreign investment," in the rather special national accounts sense, absorbed 12 billion of saving. To summarize, out of about 350 billion dollars of gross investment and 200 billion of net investment, all but 50 billion was financed within the sector in which it took place. Corporations drew to the extent of 40 billion dollars on outside saving, which was provided by the government and personal sectors.

In time of war, of course, the picture has been very different. In the 1942-45 period, for example, net investment was negative, and the very substantial saving of the personal and corporate sectors was available to finance the government deficit.

I conclude that, if the period 1946-53 is representative, the stereotype which regards saving as the peculiar function of the personal sector and investment as that of the business sector of the economy is completely out of line with the facts. So far as the statistical picture is concerned, it would be more accurate to regard each sector as financing its own investment from its own saving, recognizing that, in the case of the personal sector, a substantial fraction of saving flows into financial institutions and then back to individuals who are buying houses.

III. *The Motivation of Saving and Investment*

What is the significance of this conclusion for the theory of income determination? Does the fact that the personal and corporate sectors largely provide their own saving mean that saving and investment offset each other automatically, leaving a relatively small job of equating them to be done by what I have called the adjustment mechanism?

The first point to be made in this connection is that, in the statistical picture we have been presenting, the economy was subdivided into two or three very large chunks or sectors, not into the operating economic

units: firms and households. It is not the offsetting of saving and investment within a sector but within an individual unit that counts. With respect to corporations, this point may be of secondary importance because corporate savings are probably used largely to finance investment by the same corporation. With respect to households, however, the point is of crucial importance, as is suggested by the close relation between investment in housing and incurring of mortgage debt.

It may be more fruitful to view the matter in another way. The point of departure for our discussion of saving and investment was the statement that saving and investment are performed by different economic units and for different reasons. We focused, in the last section, on the economic units, grouping them by sector. For the theory of income determination, however, it is the last part of the statement, referring to motivation, that is significant. If people and firms save because they want to invest or invest because they want to save (both simultaneous), then the equation of saving and investment will be automatic (provided government remains neutral), and there will be no need for an adjusting mechanism. In particular, changes in saving will be automatically offset by changes in investment, and vice versa, and the saving-investment process will not be responsible for instability.³ (It should be noted that this is not an "all or nothing" matter. Partial automatic offsetting of saving and investment can reduce the load on the adjusting process and thereby reduce the range of instability.)

Our task, then, is to throw what light we can on the question whether the reasons for saving and the reasons for investing are identical, and, in particular, to see whether the facts cited in the preceding section are at all helpful.

As regards corporations, the factors determining the division of net income between dividends and retained earnings form the subject of Professor Lintner's paper, and I have no desire either to compete with him or to disclose his conclusions prematurely. This much, however, can be said. If corporate saving is motivated largely by the desire to invest, that fact would represent a contribution to stability.⁴ Even if

³ It is true, as stated in the text, that an economy in which the motives for saving coincide with those for investment will be characterized by stability in the sense that a vertical shift in the investment schedule will ordinarily be accompanied and offset by an equal vertical shift in the saving schedule, leaving the equilibrium level of income, as determined by their intersection, unchanged. But, as several readers have pointed out, it is also true that, if the saving and investment functions are almost parallel, a small shift in one which is not offset by a shift in the other will produce a large displacement of the equilibrium level of income. In the limiting case of a Say's Law economy, in which the saving and investment functions coincide, the equilibrium position, if it exists at all, will not be determined by their (nonexistent) intersection, and a small change in net spending can cause an infinite change in income unless some other variable operates as a stabilizer. See, also, the comment by Professor Tarshis, below.

⁴ The inference may be drawn from this statement that offsetting changes in corporate saving and investment are necessarily neutral in their effect on income. Such an inference

corporate saving is not so motivated, the line of causation might run the other way: investment expenditures might be influenced by the availability of internal funds.

Furthermore, it would be surprising to find many cases in which corporate saving were allowed to accumulate to any substantial extent without being invested in physical assets, old or new, rather than liquid assets. In the one conspicuous case in which a corporation did retain its earnings largely in liquid form, a proxy fight ensued, and, while the opposition group did not obtain control, a change in policy does seem to have taken place.

In a most interesting paper delivered at these meetings two years ago, Edgar M. Hoover ("Some Institutional Factors in Business Investment Decisions," *AEA Papers and Proceedings*, May, 1954, page 201) suggested that the conventional picture of an infinitely elastic supply of investment funds available to a firm is unrealistic, and that a more realistic picture might be presented by a curve consisting of a perfectly elastic but limited segment representing depreciation funds, followed by a discontinuous jump to a second higher but also perfectly elastic segment representing retained earnings, and, finally, after a second discontinuous upward jump, a smoothly rising curve representing outside funds. The existence of the two discontinuous jumps implied that many firms would be operating at one of these "corners." Consequently, their investment expenditures would automatically offset either depreciation funds alone, or these plus retained earnings, and, over a wide range, would be unaffected by changes in investment prospects or in the cost of funds.

This situation would contribute to economic stability. Even if the discontinuous jumps portrayed in Hoover's picture (which he presented only as a rough first approximation) are, in reality, likely to be less sharp and more continuous, some tendency toward stability would remain.

As regards the personal sector, we have seen that the bulk of personal saving in the postwar period has been used to finance investment in housing. We have also seen, however, that among individuals, there is no close matching in any particular year between investment and saving, since most house purchases are financed initially mainly by borrowed funds or the liquidation of other assets rather than current saving, while most saving takes the form of increased holding of claims or reduction of debt (including, to be sure, amortization of housing

would not be justified. If saving and investment of all other sectors are not automatically offsetting, then offsetting changes in corporate saving and investment may affect the level of income, in a manner that is precisely analogous to the operation of the familiar "balanced budget theorem." (See P. A. Samuelson, "The Simple Mathematics of Income Determination," in Metzler *et al.*, *Income, Employment and Public Policy*.)

mortgages). Whether there is any close motivational relation over a longer period between home ownership and personal saving is an open question.⁸ In the short run, however, it seems highly unlikely that there is any such relation. (It might be argued that expenditure on a house is likely to compete with purchases of consumer durables. But in fact the purchase of a house is likely to coincide with expenditure on house furnishings.) Therefore, the mere fact that housing investment and the saving to finance it take place within the personal sector does not contribute to stability by reducing the burden on the saving-investment adjustment mechanism.

If we were to follow Goldsmith in defining saving and investment to include expenditure on consumer durables, we should have to face the same issues, but the conclusion might well be different. It seems plausible (as suggested by Duesenberry in the Minnesota symposium) that, in the period in which they are made, purchases of consumers' durables are largely additive to consumption of nondurables and competitive with saving in other forms, but that over the comparatively short period in which installment debt is liquidated, they are competitive with consumption.

As regards investment by unincorporated businesses, there appears to be some reason to believe that it is associated with saving by their owners. This subject, however, is shrouded in considerable obscurity because of the absence of adequate data on the saving of noncorporate businessmen and farmers.

This discussion, with all its unresolved questions, does enable us to say that the rather impressive statistical picture presented in the preceding section, with sector saving largely offsetting sector investment, probably does not correspond to an equally extensive automatic matching of saving decisions and investment decisions. The reasons which motivate individual economic units to save and to invest are sufficiently different that, if they tend to fluctuate, they are likely to do so independently and hence to throw most of the work of equating them onto the adjusting mechanism.

IV. Concluding Remarks

We have been concentrating on only one factor making for or against economic stability: the extent to which the automatic offsetting of saving and investment relieves the adjustment mechanism of the burden of equating these two magnitudes. The fact that we have not reached any strikingly hopeful conclusion on this score is no ground for pessi-

⁸ This issue and the others relating to personal saving discussed below are referred to by a number of the participants in the Minnesota symposium on saving. See *Savings in the Modern Economy*, edited by Heller et al., Part II.

mism as to the prospects for stability and high employment. After all, the attainment of these objectives is affected by many other considerations, and a brief reference to a few of them may help to put our discussion in perspective.

1. *The efficiency of other adjusting variables in the saving-investment adjustment mechanism.* To the extent that other variables, such as interest rates and the availability of funds, help to equate saving and investment, the need for fluctuations in prices and incomes is reduced.

2. *The trend and variability of saving and investment themselves.* If, once brought into adjustment at a satisfactory level of output, saving and investment tended to remain stable, there would clearly be little work for the adjustment mechanism to do. Unfortunately, I am not able to offer any predictions as to the future behavior of the saving and investment functions. One factor which has been noted is the increasing tendency for large corporations to budget capital expenditures over a long period. This may make investment more regular and should certainly make it less sensitive to adverse changes in short-run prospects, and thus reduce the perverse induced movements of investment. How significant this factor may be is not yet clear, since it has not yet been tested by any marked adverse changes in short-run prospects.

3. *The sensitivity of saving and investment to changes in income.* The more sensitive is saving (and the less sensitive is investment) to changes in income, the smaller will be the fluctuations in income required to equate them. This point involves the effect of long-term capital budgeting in reducing the perverse sensitivity of investment, which we have just noted. More importantly, it involves the well-known built-in stabilizers in the tax and transfer system. The greater the impact of income changes on tax receipts and transfer payments, the more will disposable income be cushioned against changes in national product. The tendency to maintain stable dividends in the face of fluctuating earnings operates in the same direction. In terms of the saving and investment analysis (which, it might be mentioned, is not well adapted to handling government), we could say that government and corporate saving absorb a large part of the effect of changes in income caused by changes in investment. It was the operation of these stabilizers, powerfully aided by a reduction in tax rates—which should not be confused with built-in stability—that permitted disposable income to remain stable in the downswing of 1953-54. And, as Professor Hansen has pointed out in an interesting note in the November, 1955, *Review of Economics and Statistics*, it was the stability of disposable income rather than any change in the relation between disposable income and consumption which accounted for the stability of consumption.

DISTRIBUTION OF INCOMES OF CORPORATIONS AMONG DIVIDENDS, RETAINED EARNINGS, AND TAXES*

By JOHN LINTNER
Harvard University

This paper will present some of the more generally important results of our studies of corporate dividend policy which have a relatively direct bearing on cyclical fluctuations and longer term growth trends in the economy. The first section will review some of the results of our field investigations which are most relevant in this connection. I will then use these findings to set up a theoretical model of corporate dividend behavior and proceed to illustrate a few of the statistical tests we have under way regarding the adequacy and reliability of the model and the stability of the indicated patterns of behavior and policy.¹ Most of the discussion will run in terms of dividend decisions and dividend policies rather than retained earnings and savings, since our evidence indicates that dividends represent the primary and active decision variable in most situations. As will develop later, savings in a given period generally are largely a by-product of dividend action taken in terms of pretty well established practices and policies; dividends are rather seldom a by-product of current decisions regarding the desired magnitude of savings as such. Similarly, the primary effect of taxes on the volume of net corporate savings results from their impact on the magnitude of net earnings which is a primary determinant of the volume of

* These studies are being made at the Harvard Business School under a grant from the Rockefeller Foundation for work in the general area of profits and the functioning of the economy. The author wishes to express his appreciation to his research associate, Mr. Samuel Schwartz, who conducted most of the field interviews. Although the writing and the formulation of dividend policy presented are my own, Mr. Schwartz's field notes and verbal discussions with him have added substantially to my understanding of these problems. I have also benefited from discussions with Professors Guy Orcutt, James Duesenberry, Keith Butters, and John Meyer regarding various aspects of these studies. Needless to say, I take full responsibility for the results presented.

¹ In keeping with the broad orientation of this whole series of meetings, the statistical material presented here will concentrate on the dividends and net savings of aggregates of corporations over time and the predictability of these magnitudes. Other tests under way include time-series analyses for all major industry groups and for identical leading companies in over 20 smaller industry groups, cross-section studies of 10-k data for over 800 firms in various postwar years (and smaller numbers in earlier years) classified by a variety of industry and company characteristics and testing the significance of numerous other factors in addition to our basic model, and combined cross-sectional-time-series analyses. In addition, substantial statistical work on other data (and further theoretical work) is under way to round out the basis for normative judgments and standards. The present paper is entirely descriptive and analytical, focusing on what behavior is, not on normative questions of what it should be in terms of any possible set of standards of objectives.

dividends—and this again can most easily be developed by focusing on dividend decisions and policies.

I

As a background, it will be well to indicate at the outset the general characteristics (and our method of selecting) the companies whose dividend practices have been intensively studied on an individual basis. After a careful review of both the academic and nonacademic literature on corporate financial policies and the School's case files, we made up a list of some fifteen readily observable factors and characteristics that appeared to reflect or might be expected to have an important bearing on dividend payments and policy. We then reviewed the available information on over 600 listed, well-established companies and selected 28 for detailed investigation, such that there was a minimum of 3 companies within each major breakdown of each of these characteristics. As illustrations, we included 10 companies whose gross plant and equipment expenditure in the postwar years through 1953 had been more than 300 per cent of their gross account in 1945, and 5 under 100 per cent; 4 paid out over 70 per cent of their earnings in these years, 12 less than 40 per cent; 6 used no external financing during the period, while 5 had used these sources for more than 40 per cent of total uses of funds for plant and equipment and working capital increases; and the group was divided almost evenly between durable and nondurable goods industries and also between consumer and producer goods industries. Other factors included company size, frequency of change in rates, relative average earnings on invested capital, average price-earnings ratios, balance-sheet and fund flow liquidity, stability of earnings, capitalization, use of stock dividends, extras and splits, and the size and relative importance of stock ownership by management and other control groups. The companies selected were all in the broadly defined "industrial" area, because of the greater diversity of dividend policy within this sector and the relatively greater knowledge of dividend policies among other important groups.

A complete financial analysis based upon all published sources was then made for each company emphasizing developments within the postwar years. A special attempt was made to identify all occasions when a change in dividends might well have been under active consideration even though no change was made. The subsequent interviews were focused upon determining the factors which entered most actively into decisions in these cases, as well as in all cases where dividend rates were in fact changed. This initial focus had the very real advantage of emphasizing concrete, tangible elements in actual decisions, but the discussions of course also covered more general material. In order to be

more likely to detect differences in viewpoint that would affect decisions, we held interviews in the large majority of these companies with from two to five responsible officials, including presidents, financial vice-presidents, treasurers, controllers, and directors.

As a final introductory comment: the companies were not selected as a sample upon which to draw statistical conclusions; rather they were deliberately selected to encompass a wide variety of situations and to build in opportunities for significant suggestive contrasts between the policies of companies similar in several respects but differing in other important characteristics. In view of the extent of the diversity built into the selection of the companies, some significance can be attached to such uniformities in policies as were observed. But any appraisal of the generality of findings coming from such a field survey must necessarily depend upon an essentially statistical analysis of appropriate data.

What then can be said in any general way regarding the dividend policies of this diverse group of 28 companies? Several features of central importance stand out clearly. With the possible exception of 2 companies which sought a relatively fixed percentage pay-out, consideration of what dividends should be paid at any given time turned, first and foremost in every case, on the question whether the existing rate of payment should be changed. In studying 196 company-years of dividend action (28 companies, seven years, 1947-1953), we found no instance in which the question of how much should be paid in a given quarter or year was considered without regard to the existing rate as an optimum problem in terms of the interests of the company and/or its stockholders at the given time, after the manner suggested by the usual theoretical formulations of such problems in static terms, even when expectations are considered. Rather, there would be serious consideration of the second question of just how large the change in dividend payments should be only after management had satisfied itself that a change in the existing rate would be positively desirable. Even then, the companies' existing dividend rate continued to be a central bench mark for the problem in managements' eyes. On the basis of our field observations, the dependent variable in the decision-making process is the change in the existing rate, not the amount of the newly established rate as such.

It was equally clear that these elements of inertia and conservatism—and the belief on the part of many managements that most stockholders prefer a reasonably stable rate and that the market puts a premium on stability or gradual growth in rate—were strong enough that most managements sought to avoid making changes in their dividend rates that might have to be reversed within a year or so. This

conservatism and effort to avoid erratic changes in rates very generally resulted in the development of reasonably consistent patterns of behavior in dividend decisions. The principal device used to achieve this consistent pattern was a practice or policy of changing dividends in any given year by only part of the amounts which were indicated by changes in current financial figures. Further partial adjustments in dividend rates were then made in subsequent years if still warranted. This policy of progressive, continuing "partial adaptation" tends to stabilize dividend distributions and provides a consistency in the pattern of dividend action which helps to minimize adverse stockholder reactions. At the same time it enables management to live more comfortably with its unavoidable uncertainties regarding future developments—and this is generally true even during at least a considerable part of most cyclical declines, since the failure of dividends to reflect increasing earnings fully and promptly during the preceding upswing leaves more cushion in the cash flow position as earnings start to decline.

Within this context of the decision-making process, it became clear that any reason which would lead management to decide to change an existing rate—and any reason which would be an important consideration in determining the amount of the change—had to seem prudent and convincing to officers and directors themselves and had to be of a character which provided strong motivations to management. Consequently, such reasons had to involve considerations that stockholders and the financial community generally would know about and which management would expect these outside groups to understand and find reasonably persuasive, if not compelling. Current net earnings meet these conditions better than any other factor. Earnings are reported frequently and receive wide publicity in the financial press. Most officers and directors regarded their stockholders as having a proprietary interest in earnings, and many urged the stockholders' special interest in getting earnings in dividends, subject to their interest in regularity of payment. The managements we interviewed very generally believed that, unless there were other compelling reasons to the contrary, their fiduciary responsibilities and standards of fairness required them to distribute part of any substantial increase in earnings to the stockholders in dividends. Even the executives in the minority who were most inclined to view the interests of the company as distinct from those of the stockholders, and who seemed least concerned with their responsibility to frame dividend policy in the best interests of the stockholders as such, were generally concerned with the decline in favorable proxies and in the weakening of their personal positions which they believed would follow any failure to reflect a "fair share" of such added earnings in dividends. Similarly, managements felt that it was both fair and pru-

dent for dividends to the shareholders to reflect some part of any substantial or continued decline in earnings, and that under these circumstances stockholders would understand and accept the cut.

In contrast with earnings, other considerations and aspects of the companies' positions were thought to be less generally known, less widely understood, and less generally and sympathetically recognized by stockholders as factors which should have an important bearing upon dividend distributions. Moreover, no other consideration was nearly as consistently important year by year and company by company. Such things, for instance, as indenture provisions restricting dividends, debts to be discharged at specific dates, or tight liquidity positions were important in particular instances, but dividend decisions were dominated by such considerations rather than by earnings in line with an established policy in less than five percent of the company-years studied, and these exceptions were not clustered in any particular years. In part this finding reflects the general prosperity of the postwar period, but a large part of the explanation almost certainly lies deeper. A prudent foresighted management will always do its best to plan ahead in all aspects of financial policy to avoid getting into such uncomfortable situations where dividends *have* to be cut substantially below those which the company's previous practice would lead stockholders to expect on the basis of current earnings. Stockholder reactions in such situations have been sufficiently vigorous and effective in enough companies that the fear of such a reaction is an effective "burr under the saddle" to all managements, including those which have never been in such difficulty themselves. We might add that a policy geared to considerations other than earnings would have to be explained and justified first on one thing and then on another. Even if there were a perfectly consistent underlying rationale to such a policy, it would be difficult to explain in simple, understandable and persuasive terms, and would probably seem erratic, *ad hoc* or "academic." Moreover, as shown below, companies have generally framed policies (or systematic patterns of behavior) geared to earnings which do quite generally take care of these other considerations in what they regard as a reasonably satisfactory manner.

The particular mix of attitudes and sentiments, pressures and sense of responsibility, standards of fairness and good management performance entering into the dividend decisions, practices and policies was somewhat different in each company visited, and covered a wide spectrum within the group as a whole. In almost every company it was nevertheless such that, barring clearly exceptional circumstances, major changes in earnings or levels of earnings "out of line" with existing dividend rates were the most important determinants of the company's dividend decisions. In particular, we found that the level of current

earnings was almost invariably the starting point in management's consideration of whether dividends should be changed, and there were many cases where management, lacking a signal from earnings, had simply not sought out or brought other pertinent data (which might have favored a dividend change) to bear on the problem. Earnings were always present as a major factor and most generally dominated the decision whether or not to change the rate, even when the discussions ranged over a number of other considerations.

We also found that the relationship between current earnings and the existing dividend rate was very generally much the most important single factor determining the amount of any change in dividends decided upon. In describing the character of this dependence, it is convenient to divide the companies into two groups. In the first group are two-thirds of the companies studied, each of which had a rather definite policy regarding the ideal or target ratio of dividends to current earnings. In all but two of these companies, however, for reasons already indicated, this normal pay-out ratio was considered to be a target or an ideal toward which that company would move, but not a restrictive requirement dictating a specific percentage payment within each year. Moreover, most of these companies also had somewhat more flexible but nevertheless reasonably well-defined standards regarding the speed with which they would try to move toward a full adjustment of dividends to current earnings. In a majority, these standards took the form of a formal policy or a rather clear understanding that dividends should be adjusted by some fraction of the difference between the last period's payment and the rate which would be indicated by applying the target pay-out ratio to current earnings, or a policy to make a full adjustment rather regularly over some stated period of years. The corresponding standards in the other companies with fixed pay-out targets were expressed more in terms of having and maintaining a reasonably consistent pattern of action which would both meet the company's particular needs most of the time and also reasonably balance the longer term interests of stockholders in the company and their shorter term interests in current income. Although these less specific standards resulted in a little more flexibility, the resulting dividend action in most company-years was approximately that which would have been taken if the fractions implicit in the more general standards for each company had been made explicit and adhered to in each case.

The target pay-out ratios varied from a low of 20 per cent to a high of 80 per cent, with 50 per cent the most common figure and most of the other companies aiming at 40 or 60 per cent. With respect to speed of adjustment, two companies sought to make a reasonably full adjustment in dividends within each year, while most of the others generally

sought to move some part of the way within each year.² Among the latter, the fraction generally "made up" in each year varied from one-half to as little as one-fifth or one-sixth. In every company the adjustment in any given year was subject to a general preference for changes in the dollar rate of dividends per share in terms of some rounded unit such as five, ten, or twenty-five cents and was often stated as a range such as "between a quarter and a third." It should also be noted that dividends were uniformly considered in terms of annual periods.

As an illustration of these patterns of adjustment, consider two synoptic companies which had been paying \$2.00 a share on reasonably stable earnings of \$4.00 a share. After earnings had increased to a \$6.00 level, an ultimate adjustment to a \$3.00 dividend rate would be indicated in both companies. In the company with a lower rate of adjustment, the dividend would be increased to \$2.25 in the first year and on to \$2.50 in the second and \$2.65 in the third year (even on earnings of \$5.50). The other company, with a more rapid rate of adjustment but with the same change in earnings and the same target pay-out, would move its previous \$2.00 rate to \$2.50 in the first year and to \$2.75 in a second. It will be noted that some further increases in the current dividends are to be expected even in years when profits suffer some decline whenever substantial earlier increases in earnings have not yet been fully reflected in dividends and the existing rates are still below target pay-out ratios applied to the new (lower) rate of current and reasonably foreseeable future earnings per share. Similar reverse movements of current dividend payments and changes in earnings sometimes occur in the contrary case where earnings are somewhat higher than in the preceding year and dividends had not yet been fully adjusted to the depressed level of earnings. This pattern was less frequently observed, however, because of a general reluctance to make reductions in dividends rates, especially in "regulars." For these reasons the relationship between an existing dividend rate and that rate which would constitute a target pay-out of current and reasonably foreseeable profits was found to be a much more generally significant and stronger factor in dividend decisions than simply the current change in profits taken by themselves.

² This group included all the companies which were willing to make use of "extra" as well as "regular" rates. In a minority of instances, companies would make two years' adjustment in one with no further action the second year, or defer an increase one year and then catch up in the second. These anticipations and deferrals were about equally frequent and had no particular pattern in time, except for some clustering of anticipations in 1950. Clearing up debt or currently rich investment opportunities were the two most frequent reasons for deferrals, but the total number was relatively small and well scattered over the seven years studied. The small number of companies which as a matter of policy would not use extras, generally adjusted their dividends at intervals of two or three years. This reflected the reluctance (common to all companies) to reduce regular rates once established and a consequent conservatism in raising regular rates. Several of the companies not using extras distributed stock dividends when earnings were rising in the interval between changes in regular rates.

The different target pay-out ratios and adjustment rates in the various companies reflected a large number of different factors in the companies' experience, objectives, and pattern of operations. In some cases management had weighed and in some manner "balanced out" these considerations at some time in the earlier history of the company; in most companies a growing body of experience and precedents accumulated out of numerous decisions individually made on an *ad hoc* basis gradually became more rationalized and formalized in a reasonably fixed and definite policy. Among the more important factors which had more or less consciously and rationally entered into these standards were: the growth prospects of the industry and, more importantly, the growth and earnings prospects of the particular company; the average cyclical movement of investment opportunities, working capital requirements, and internal fund flows, judged by past experience; the relative importance attached by management to longer term capital gains as compared with current dividend income for its stockholders, and management's views of its stockholders' preference between reasonably stable or fluctuating dividend rates, and its judgment of the size and importance of any premium the market might put on stability or stable growth in the dividend rate as such; the normal pay-outs and speeds of adjustment of competitive companies or those whose securities were close substitutes investmentwise;³ the financial strength of the company, its access to the capital market on favorable terms, and company policies with respect to the use of outside debt and new equity issues;⁴ and management's confidence in the soundness of earnings figures as reported by its accounting department, and its confidence in its budgets and projections of future sales, profits, and so on.

It would take us beyond the limits of this paper to undertake any systematic discussion of the impact and relative importance of each of these factors on the level of the target pay-out ratio and the speed-of-adjustment factor. For our present purposes, the important thing is that, in each of these companies, two more or less specific standards

³ This is an aspect of the phenomenon I have elsewhere termed "dividend leadership" by analogy with price leadership and wage leadership. See John Lintner, "The Determinants of Corporate Savings," in *Savings in the Modern Economy*, ed. Heller *et al.* (University of Minnesota Press, 1953), p. 252. The dividend policies of companies whose securities already had the investment standing which the interviewed companies' managements hoped to attain were also frequently influential.

⁴ The cost of equity capital or long-term debt generally did not enter into either the establishment of the policy or in particular dividend decisions in companies which as a matter of policy would not go to the market for long-term capital. In the others it entered only as a long-term average and often rather vaguely. We found no case where the cost at a particular time entered directly into a current dividend decision; the influence of the current cost of outside capital was rather on the timing of its use and on the amount secured in connection with investment decisions as discussed below. We did find three company-years in which dividends were raised to the top of the permissible range marked out by established policy (or a little above) a year or so before new equity issues in order to improve the terms.

have been jelled out of experience—or established as a matter of policy on the basis of a more or less balanced appraisal of these considerations—and that once established, the target pay-out ratio and the standard (fractional) speed of adjustment were adhered to with little deviation over extended periods of time. Moreover, although the target pay-out ratios and standards regarding speed of adjustment varied over a considerable range among these companies on a cross-section basis, in most of the companies the standards themselves were invariant over time—as specific figures for target pay-out ratios and as orders of magnitude for speeds of adjustment. Except for four companies, there was little evidence of any significant change in these standards within individual companies during the postwar years, and there was little evidence in the interviews (or in the spot statistical checks we have made) of any significant modifications in the standards between the prewar and postwar periods.

Special comment is required, however, regarding the bearing of the magnitude and profitability of current investment opportunities and the ease or stringency of current liquidity positions on each year's dividend decisions within the framework of these two standards. As already indicated, each company's target pay-out ratio and speed-of-adjustment factor reflected the cyclical movements of investment opportunities, working capital requirements, and fund flows in its previous experience along with the other considerations mentioned. Moreover, the standards ran in terms of net earnings as reported to stockholders and many used LIFO accounting for much of their inventories. Generally speaking, after these standards had been established or embodied in informal understandings, the company lived with them and undertook all of its financial planning and capital budgeting in the light of these standards of dividend behavior. Managements deliberately planned ahead so that carrying through their established dividend policy would not involve them in unduly short liquidity positions. Management was generally in a position and was willing to draw down on working capital to help meet such requirements. In general, management's standards with respect to its current liquidity position appeared to be very much more flexible than its standards with respect to dividend policy, and this flexibility frequently provided the buffer between reasonably definite dividend requirements in line with established policy and especially rich current investment opportunities. If investment opportunities were particularly abundant and could not be financed with the funds currently available after dividends had been increased in line with established policies, the remaining investment projects which could be undertaken only through outside financing were re-examined to make sure that they were sufficiently desirable as to justify the company in having recourse

to outside capital. If so, the necessary capital was raised and the projects were undertaken; if not, the projects were abandoned. In the companies which as a matter of policy would not go to the outside market except in most extreme circumstances, the capital budget year by year was simply cut to fit the available funds.

In this connection it must be recognized that net earnings generally increase much more than in proportion to increased volume (and similarly on declines). Even though dividend rates are increased somewhat in line with policy described, the current pay-out ratio will decline with increased profits and under this pattern of behavior retained earnings fluctuate still more than in proportion. Marked fluctuations in working capital requirements and investment outlays are consequently "automatically" provided for under this form of conservative dividend behavior to a very considerable extent at least. This fact, together with the marked dependence of capital budgets upon the availability of internal funds (even when outside funds are used) shown in all the studies of this subject, go far to explain the finding that investment requirements as such very generally had relatively little direct effect in modifying the pattern of dividend behavior, except in a limited number of special situations well scattered over the years studied.

So far we have been describing the dividend practices of about two-thirds of the companies in our field interviews which had a rather clearly established dividend policy, defined in terms of a more or less standardized rate of adjustment to a fixed target pay-out ratio on current earnings. The dividend practices of other companies may be described much more briefly. These companies had no formal or well-established standards with respect to either target pay-out ratios or speed of adjustment, as such. One well-known company had a special system, unique in our field work, by which its dividends were generally set to provide roughly a median market dividend yield among an *ad hoc* group of growth companies; and another simply had an erratic set of dividend decisions which reflected the capricious personality of a dominating member of the management far more than any other consideration. Otherwise, the dividend behavior of all the remaining companies adhered rather closely to what would have been expected if the companies had had a well-defined dividend policy of the type found in the large majority of companies previously described: their actions in changing dividends within the postwar period were generally consistent with the rates which would have been paid in each year or two if the company had in fact been setting dividends in terms of some (appropriately specified) target pay-out ratio and speed of adjustment. These companies appeared in general to take into account much the same range of factors as was described previously in connection with the

setting of a target pay-out or adjustment factor, except that in these companies such factors were applied directly on what management regarded as an *ad hoc* basis to the specific dividend decision itself. In particular, they seemed to have much the same desire to attain reasonable consistency and avoid erratic action, as well as very similar standards of fairness, sense of prudence, and fears of adverse stockholder reactions, as were found in the majority of companies.

In the light of the entire pattern and internal logic of these dividend policies and practices, the effects of taxes on the amount of dividends distributed by the companies studied should be clear. Standards and objectives were established in terms of earnings as reported to stockholders and these, of course, were uniformly stated after tax liabilities had been deducted in full. Moreover, net earnings were the predominant element which determined current changes in dividends in the light of the policy. The higher the tax liability, the smaller the net earnings reported and the smaller the dividend.

II

These dominant patterns of decision making with respect to dividends (and consequently retained earnings) which we have observed in our field work can be readily embodied in a simple theoretical model of this aspect of corporate financial policy which can be subjected to statistical testing. Specifically, our field work suggests the hypothesis that the strong central tendencies of most dividend decisions can be readily explained on the basis of the following equation:

$$(1) \quad \Delta D_{it} = a_i + c_i (D^*_{it} - D_{i(t-1)}) + u_{it}$$

where $D^*_{it} = r_i P_{it}$ and r is the target pay-out ratio, P_t is the current year's profits after taxes, ΔD_t is the change in dividend payments, and D_t and D_{t-1} are the amounts of dividends paid in the years identified by the dating subscripts t . The subscript i identifies the individual company and D^*_{it} represents the dividends which the company would have paid in the current year if its dividend were based simply on its fixed target pay-out ratio r_i applied to current profits. The parameter c_i indicates the fraction of the difference between this "target" dividend D^*_{it} , and the actual payment made in the preceding year $D_{i(t-1)}$, which the company will intend on the average to reflect in its current year's dividend as an increase (or decrease) from the previous year's payment. The constant a will be zero for some companies but will generally be positive to reflect the greater reluctance to reduce than to raise dividends which was commonly observed as well as the influence of the specific desire for a gradual growth in dividend payments found in about a third of the companies visited. The variable u represents the

discrepancy between the observed change ΔD_{it} and that expected on the basis of other terms in the equation. It will absorb discrepancies due to each company's preference for dividend rates in rounded units per share, as well as the impact of all other considerations insofar as they are not systematically reflected in the values assigned to the two parameters c_i and r_i and the constant term, which is in the nature of a trend factor.

The degree to which this model summarizes the dividend policy observed in our field work may be quickly indicated. Twenty-six out of the twenty-eight companies had (or acted to a good approximation as if they had) a pretty specific value of r_i established as a matter of policy, and twenty had reasonably definite values of c_i while six others had somewhat more flexible values of c_i . Twenty-two of the companies considered adjusting dividends year by year and generally did so as shown in the model, but the other four generally sought to make adjustments only every two or three years. Among these twenty-six companies both r_i and c_i were unchanged in the postwar period covered except for single major policy changes in r_i in two companies and in c_i in two others. As a descriptive summary, we may note that about 85 per cent of the company-years of dividend action studied in this group of twenty-eight companies can be explained in terms of this model with only moderate discrepancies and that the discrepancies have no clear pattern in time or in the reasons ascertained for their occurrence in various companies at any given time. This 85 per cent figure includes "predictions" of dividend changes accurate within amount limits set by the "rounding" band (cf. above) and time limits of twelve months' periods. The figure is over 90 per cent if six months' further leeway is allowed and failures to reduce existing regular rates are not counted. Apart from the latter reluctance to cut rates, the nearest thing to a pattern we observed was evidence of follow-the-leader behavior or pseudo fashions in payment of extras (as well as in stock dividends and splits which are not involved in the present analysis) and some bunching of increases larger than normal in 1950 due to favorable expectations. The diversity built into the selection of our field cases lends some measure of nonstatistical significance to these findings and encourages further testing of the resulting model, but the smallness of the number of cases and our methods of selection (which were chosen to serve other important objectives) bar anyone from attaching statistical significance to the preceding findings.

Extensive statistical tests of the adequacy and reliability of this model have already been made with encouraging results, and still more are currently under way in work which will be published in detail elsewhere. (See footnote 1.) We have time here to illustrate no more than

one set of results which have a direct bearing on the cyclical and longer term matters which are being discussed in these meetings. Specifically, we will take this model developed from postwar dividend behavior observed in the field, fit it to prewar data for the corporate universe specified in the national income accounts, and use the resulting parameter values to make forecasts of postwar dividends and retained earnings. The magnitude of the resulting errors of predictions will then be compared with those obtained from using four alternative models previously suggested by other authors, and also with a "naïve model." Before turning to these results, however, we may note that equation (1) may readily be converted into

$$(2) \quad D_{it} = a_{it} + b P_{it} + d D_{i(t-1)} + u_{it}$$

where $b = cr$ and $d = (1-c)$, without affecting the error term.

This is the equation I suggested and used in a previous study with excellent correlations, random residuals and highly significant regression coefficients over the entire period, 1918-51, and all major subgroups of years.⁵ I noted that when the equation was fitted to the years 1918-41, practically the same regression coefficients were obtained as were found when the war and postwar years were included, so that the equation fitted to the interwar years gave very satisfactory predictions of both the war and postwar dividend payments (or retained earnings). The equations fitted to data for 1918-41 (excluding 1936 and 1937 because of the undistributed profits tax) were: $D = 352.3 + .15 P_w + .70 D-1$ with profits adjusted for inventory gains and $D = 106.0 + .145 P_n + .788 D-1$ when profits were unadjusted. These are the equations used in the following projections. Since Commerce has subsequently revised the postwar data and more years are now available, it is significant to note that this equation fitted to the data through 1941 predicts the nine years of postwar data as revised with an average algebraic error of -163.7 million dollars (which is a 2.0 per cent underestimate of actual average dividends and a 2.2 per cent overestimate of actual retained earnings) when the prewar equation with inventory valuation adjustments is used, and +457.9 million dollars (5.6 per cent of actual

⁵ See Lintner, *op. cit.*, pp. 252-253. R with dividends as the dependent variable was .976 without inventory valuation adjustment, .967 using data with this adjustment. The corresponding values with retained earnings were .996 and .993. The von Neumann ratios were respectively 1.62 and 1.94. These results (and those presented later in this paper) imply stability over time in the aggregative c and r (or b and d). It should be noted that since we found four changes in c or r in just twenty-eight companies in seven postwar years and since such changes were probably more frequent before the war especially during the depression, the stability in the aggregative or weighted averages c and r found in this statistical work implies an underlying synchronizing mechanism of weight shifts and policy shifts of the same character suggested in an earlier study concerning profits themselves. See same reference, especially pp. 243-248. These considerations are being examined in some detail in the broader statistical analysis we are making.

TABLE 1
SUMMARY OF RESULTS OF PREDICTIONS OF POSTWAR DIVIDENDS (1946-54, INCLUSIVE), FROM VARIOUS EQUATIONS FITTED TO PREWAR DATA,
ALL AMERICAN CORPORATIONS

Variables Used	Years Fitted	ALGEBRAIC MEAN ERROR			MEAN ABSOLUTE ERROR			ROOT-MEAN-SQUARE ERROR		
		Billions of Dollars	% Actual Dividend	% Actual Retained Earnings	Billions of Dollars	% Actual Dividends	% Actual Retained Earnings	Billions of Dollars	% Actual Dividends	% Actual Retained Earnings
$P_w, D-1$ $P_w, D-1$	1918-41 1918-41	-163.7 457.9	2.0 5.6	2.2 6.1	527.2 498.8	6.4 6.1	5.6 6.7	596.7 611.2	7.3 7.5	6.3 8.2
$D = D-1$	—	590.8	7.2	7.9* 6.3†	636.8	7.8	8.5* 6.7†	815.8	10.0	10.9 8.6
P_w P_w $P_w, P-1, S-1$ $P_w, D-1, B-1$ P_w/NW P_w/NW P_w, NW P_w, NW $P_w, D-1, NW$	1918-41 1918-41 1921-40 1918-41 1918-41 1918-41 1918-41 1918-41 1919-41	2462.4 2618.8 5333.4 2162.4 -316.8 -658.6 1471.8 1334.3 2256.2	30.1 32.0 65.2 26.4 3.9 8.1 18.0 16.3 27.6	26.0 35.1 71.4 28.9 4.2 7.0 19.7 14.1 23.9	2462.4 2618.8 5333.4 2162.4 624.6 684.6 1471.8 1368.3 2256.2	30.1 32.0 65.2 26.4 7.6 8.4 18.0 16.7 27.6	26.0 35.1 71.4 28.9 8.4 7.2 19.7 14.5 23.9	2684.3 2922.5 5433.1 2434.1 712.1 802.1 1802.8 1623.1 2449.1	32.8 35.7 66.4 29.8 8.7 9.8 18.4 19.8 29.9	28.4 39.1 72.7 36.6 9.5 8.4 15.9 17.1 25.9

* Using retained earnings without inventory valuation adjustment.

† Using retained earnings with inventory valuation adjustment.

Source: P_w and P_w are profits after tax with and without inventory valuation adjustment respectively, D net dividends, S book surplus, B cumulated retained earnings from 1918, NW average net worth (book value). Regressions were computed using Department of Commerce data back to 1929, and earlier data (adjusted to Commerce concepts) from Goldsmith's *A Study of Saving in the United States*, Part I, and *Statistics of Income*.

dividends and 6.1 per cent of retained earnings) when the equation fitted to unadjusted profits is used. The mean absolute errors are 5.6 and 6.7 per cent of actual values and root-mean-square errors are only a little larger, as shown in Table 1. The von Neumann statistics to test randomness in each case (1.98 and 2.04) also lie satisfactorily close to their expected value of 2.25 for nine observations.

In each of these respects, both prewar equations on this model give results in predicting postwar dividends and retained earnings that are superior to those obtained from the use of a naïve model in which each year's dividends are simply assumed to be equal to the preceding year's payments. (The algebraic mean error from our equation with inventory valuation adjustment is only a little over one-quarter of that of the naïve model.) This naïve model in turn gives postwar forecasts which have average errors (algebraic and absolute and root-mean-square) which are from one-third to more than five-sixths lower than those involved in making estimates from prewar relationships based upon profits alone, or current and lagged profits and surplus as proposed by Tinbergen and Modigliani,⁶ or with the addition of surplus to the profit-lagged-dividend model. Dobrovolsky's basic model relating the dividend return on book value to reported earnings on book value of net worth⁷ also yields estimates with higher absolute and root-mean-square errors than either of our equations. Although this equation underestimates dividends in seven of the nine years, an extreme overestimate (1948) pulls the mean algebraic error below that of our equation without in-

⁶ See Franco Modigliani, "Fluctuations in the Savings Income Ratio: A Problem in Economic Forecasting," Part V, Vol. 11, in *Studies in Income and Wealth* (National Bureau of Economic Research, 1949), especially p. 414. The equation given in this reference, which we used in the calculations reported in Table 1, was originally developed and used specifically for estimating postwar savings. (Incidentally, the errors are larger in the later than earlier years of the postwar period, contrary to the expectation when it was developed.)

⁷ See Dobrovolsky, *Corporate Income Retention, 1915-1943* (National Bureau of Economic Research, 1951), especially p. 2 and Chap. 3, especially 20-26. His basic analysis and model of dividend policy was that stated in the text, although upon turning to size groups and cross-section statistics, lagged dividends were introduced and the conclusion reached that "among other factors affecting income retention, dividends paid in the preceding period have been found to have considerable importance." (Summary, p. 3.) As noted above, in our field work we found that instead of being simply "among other factors affecting" current dividends, lagged dividends (together with current earnings) were the prime determinants of the decisions; conversely, instead of finding book equity a prime factor, we found no company that attached any significance to it in their dividend decisions. If rate of return as such on book equity is not the critical decision variable, then net worth must enter the equation as a separate variable (since it seriously fails to satisfy the homogeneity requirements for use as a deflator over time); in this case the equations fitted to prewar data (even with the addition of lagged dividends) give predictions which are consistently inferior to our own basic model and to the naïve model, as shown in Table 1. The high autocorrelation of prediction residuals since 1949 from the net worth-ratio model using profits without inventory valuation adjustments suggests its possible usefulness for limited periods as a predictive tool, but the failure of the model to reflect properly the decision-making determinants at the microeconomic level (cf. Lintner, *op. cit.*, pp. 230-231 and 248-250) and the observed major shifts in parameters over time weigh heavily against its reliability and more basically against its structural significance.

ventory adjustment but still double that of our model with inventory adjustment. This net worth model, adjusting profits for inventory gains, has larger errors of all three types than either of our equations.

We may also make brief reference to the fact that the addition of plant and equipment expenditures, or capital outlays less depreciation, or the first differences in either of these, in no case gives a statistically significant regression coefficient with the appropriate negative sign on dividends for either the interwar years or for the entire period since 1918, with or without 1942-45. Nor have these investment variables proved significant in time series when inventory change was added to give a measure of annual expansion in physical assets. The excess of internal funds over either capital outlays or physical asset expansion is significant only if substituted for the profits variable, but the results are statistically inferior to those of the basic model. Similarly, the addition of current change in profits or of highest previous dividend outlays (when in excess of last year's dividend) fails to yield significant coefficients (or even significantly change the values observed for the basic variables). These results suggest that the parameters in our basic model were not biased by failing to allow explicitly for two types of considerations for which there was some evidence in our field work—and which have proved to be important in studies of consumer outlays and savings.

This work also indicates that the common explanation of low pay-out ratios in the postwar period as being due primarily to *ad hoc* current allowance for spectacularly large investment outlays misses the essential point involved. The evidence available indicates that the lag in the adjustment to new higher levels of profits was no more sluggish than would have been expected on the basis of the patterns of behavior established between World War I and World War II, nor is there evidence that the normal or target or equilibrium ratio of dividends to profits for corporations as a whole is any different in the postwar years than during the preceding quarter century.⁸ On the basis of our work so far, at least, the essential explanation seems to be simply that invest-

⁸ It is clear that the difference between the new and the old equilibrium levels of dividends for any given stable levels of profits after tax will simply be a fraction, equal to the target pay-out ratio r , of the change between the two (stable) levels of profits: $\bar{D}_n - \bar{D}_o = r[P_n - P_o]$. After any significant change in the level of net profits which is maintained, dividends will move toward their new equilibrium level in a geometric progression over time. After any number of years t following any major change in profits with dividends initially in equilibrium, the discrepancy between actual dividends and their new equilibrium level will be $\bar{D} - D_t = (1 - c)^t (\bar{D} - D_o)$. With an empirical value for r of .6 (the average of our two equations), a sustained increase of 9 billion dollars in corporate net profits, such as occurred following the war, would imply an increase in dividend distributions of approximately 5.5 billion dollars. (The difference between dividends in 1945 and 1954 was 5,317 millions.) Similarly an empirical value for c of .25 implies that 76.5 per cent of this increase in dividends would have occurred through the fifth year, which again seems to agree rather well with the facts.

ment outlays have over long periods been quite consistently and highly correlated with current profits, sales volume, and internal fund flows, and that allowance for these relationships in past experience has been built into the dividend policies of corporations in such a way that corporations can pay the dividends implied by those policies with considerable consistency over long periods of time, and do so (in the light of the rest of their planning) with considerable comfort and success. Moreover, the results of our statistical work indicate that allowance for tax considerations affecting dividend policy is properly and adequately made simply by our use of profits after taxes as a key variable in the equation. In particular, the evidence is consistent with a judgment that postwar dividends were not depressed (below normal expectations in terms of profits after tax and long-established policies) by the large tax bite out of pretax earnings.

On the evidence so far available, it appears that our basic model incorporates the dominant determinants of corporate dividend decisions, that these have been introduced properly, and that the resulting parameters are reasonably stable over long periods involving substantial changes in many external conditions. The analytical properties of this model, its implications for the cyclical stability and long-term growth of the economy, and its bearing on the effects of various taxes as stabilizing devices are being developed in a separate paper. We can only note here that the dividends-profits-retained-earnings subsystem is internally very stable though in continuous disequilibrium. Our statistical results suggest that over the last thirty-five years the aggregate marginal propensity to save *ceteris paribus* has had a high stabilizing value of approximately 85 per cent. The year-to-year *mps* implied by our equations is somewhat lower, however, except in the neighborhood of cyclical turning points when it may be higher. On the other hand, the (asymptotic) long-run *mps* is only on the order of 40 per cent in view of the apparently stable weighted average target pay-out ratio of about 60 per cent.

DISCUSSION

LYOUD ULMAN: I have been instructed, apparently at whatever cost in relevance to the papers presented at this session, to discuss some characteristics of the labor markets during the twenties and to hazard an opinion on the proposition that those dear dead days are beyond recall. For our purpose we might recall that the twenties constituted a period characterized by what Schumpeter described as a "rapid though not unheard of development in the output figure" and also in real net national product per capita in constant prices, sharply rising real wage incomes, stable money hourly earnings in the manufacturing sector of the economy, and falling prices. The twenties might be tentatively compared with the prosperous prewar decade 1900-1909, in which unemployment rates had been lower, money wage rates and prices had risen, but real wage rates apparently had increased very slightly or not at all and real annual earnings of nonfarm employees had barely increased. They might also be compared with the present prosperous postwar period in which money wage rates, prices, and real wage rates have all been rising.

During the twenties, the share of wages and salaries in the national income remained stable. (It increased by two percentage points between 1919 and 1929, the entire increase occurring between 1919 and 1923 and the share declining fractionally between 1923 and 1929, when, incidentally, the annual rate of increase in real income per capita dropped by about one-half.) But the behavior of the functional distribution of income is of less interest for our purpose, I believe, than a shift in the distribution of income by industrial origin. I refer to the sharp drop in the share of agriculture in net and gross national product in constant prices, which was accompanied by a decrease of almost one million persons employed in agricultural pursuits between 1920 and 1930. Since the number engaged in nonagricultural pursuits rose by slightly in excess of 7.6 million, the decline in the agricultural work force contributed significantly to the increase in the nonagricultural work force. Moreover, the increase in agricultural productivity and the decline in agriculture's share of the national income contributed to the increase in the supply of non-farm labor in two additional respects. First, the farm-city migration tended to increase the proportion of the total (agricultural plus nonagricultural) labor force to population, since the increase in the growth of the female labor force induced by such migration outweighed the impetus to reduced male participation in the labor force imparted by virtue of the fact that both age of entry into the male labor force has been lower in the agricultural sector and age of retirement has been higher. Second, the growing use of automobiles and the improvement of roads in the twenties made possible a great increase in the number of part-time farmers who commuted to and from additional nonagricultural jobs.

But the farming sector not only contributed a most important increment to the supply of industrial labor during the twenties; it contributed a supply of cheap labor, since productivity in agriculture, although increasing, tended to remain below productivity levels elsewhere in the economy. Duesenberry has

attempted to account for the persistence of this phenomenon by reference not only to immobility and nonpecuniary advantages but also to an alleged "passivity of both workers and employers," by which is meant their reluctance to undercut the going wage rate. Kuznets in effect contributed a necessary supplement to this explanation by calling attention to (among other factors including part-time employment, nonpecuniary advantages, and racial discrimination in industrial hiring) "the more monopolistic organization of many sectors of urban industry . . . [which] permitted its *employed* workers relatively high rates of pay and also limited their numbers and chose them from a large and potential supply. . . ." In my opinion, Duesenberry's behavior postulates become more questionable the farther one goes back in time in this country. In any event, the relatively high reproduction rates among the farm population and the consequent excess over replacement requirements could help to account for continuing excess supply of labor and its underemployment in agriculture, although other factors undoubtedly contributed to the total.

As a result, it may be presumed that the increases in nonagricultural real wage rates which occurred in the twenties were not required to attract workers from farms to urban industry as demand for labor in the latter sector continued to expand. (Between 1895 and 1915, when nonagricultural real wage rates rose only about 8 per cent while earnings of farm laborers rose relative to those of manufacturing workers by one-fifth, the proportion of the working population in agriculture declined by more than one-fourth.) Duesenberry cited this partial mobilization of the "reserve army" in agriculture during the twenties as empirical evidence in support of his denial of Hicks's suggestion that labor shortages could develop and check cyclical upswings. The theoretical issues need not concern us here. What is pertinent to our problem is that the agricultural reserve army cannot be expected to last forever. In 1920, about 11.5 million people, or 27 per cent of those working in all occupations, were engaged in agricultural pursuits; in 1930, 10.5 million were in agriculture, constituting about 21 per cent of the total; and by 1950, the agricultural work force had shrunk to less than 7.5 million, or 12 per cent of those engaged in all occupations. Should the same absolute decrease in farm population that occurred in the twenties take place in some future period, it would constitute a smaller percentage increment to our much larger nonagricultural work force. Moreover, it would run above the trend of per decade percentage decreases, and it has been estimated that a mere continuation of that trend to 1960 would reduce the number of agricultural workers to under 5 million, or 7 per cent of the working population. (The latter, as Bean points out, is the proportion prevailing in the United Kingdom; any implications for the Hicks-Duesenberry disagreement I cheerfully leave to the historians of economic thought.) Moreover, a continuation of the trend would, given estimates of the growth in demand for agricultural output, "require greater increases in the size of farms; in the number of acres per worker, and in productivity per worker than past experience would suggest as probable."

Do any fresh reserves of underutilized labor exist to replace the agricultural pool, when it dries up, as the agricultural reserve itself replaced immigration, which had contributed so importantly to the labor force before the first World

War? In one sense it might be argued that a new reserve of older workers is being built up with the trend to earlier retirement, the consequent decrease in the percentage of men over sixty-five in the labor force, and the aging of our population. In most cases retirement is involuntary. Yet it is probable that a significant increase in the employment of such older workers would wait on rather than forestall a rise in wage rates. For it must be presumed that employers consider the potential marginal productivity of older workers to be below that of younger workers; in this respect the older workers differ from both the pre-World War I immigrants and especially the farm boys. Thus, within limits, many employers would prefer to hire younger workers and pay higher wage rates rather than to hire even involuntarily retired workers at existing rates. To induce those voluntarily retired to re-enter the labor force would presumably necessitate some increase in wage rates; in this area Old Age and Survivors' Insurance benefits, in conjunction with the Social Security Act's "test of retirement," tends to reduce the supply elasticity of such labor.

Do women not in the labor force constitute a reserve in the sense of this discussion? An increased tendency, observable since at least 1890, on the part of women between the ages of twenty and sixty-five to enter the labor force has dominated statistically trends toward higher ages of entry and earlier ages of retirement. Especially important has been a marked increase in the tendency of married women to work for pay, since the proportion of single women to the female population has declined. In part, this has been due to increasing urbanization (as noted above) and the prewar decline in the birth rate, a trend which has since been reversed, but it apparently has been due also to such factors as the proliferation of laborsaving devices and products in the household and increased opportunities for employment. It has been estimated that, in 1953, the so-called "primary reserve" of women not in the labor force between the ages of eighteen and sixty-four, and excluding mothers responsible for the care of children or elderly people, totaled 11 million. This is about a half million larger than the agricultural work force in 1920 but much smaller relative to the nonagricultural work force. But unlike the agricultural reserve, this one will increase along with the population and the labor force. However, it is doubtful whether this "reserve" is compounded of the same alloy as the farmers. It is true that increased labor force participation by women does not represent a sacrifice of leisure time by them to the extent that it has merely constituted a shift from nonmarket to market activity. Moreover, it is largely true that female employment has been increasing most rapidly in precisely those industries and occupations in which employment in general has been increasing most rapidly; namely, trade, finance, and other sources of white-collar work. These two facts might constitute evidence in support of the position that women entrants into the industrial labor force, like farm entrants, give up little in the way of leisure and therefore wait only on opportunities for "suitable employment." On the other hand, that some sacrifice in leisure or in family time has been involved in the transfer is indicated by the fact that, in the past, increased female participation has followed reduction of working hours and improved working conditions in industry and that women have been found to enter and leave the labor force more fre-

quently than men. Moreover, persistent labor shortages have been reported in occupations filled frequently by women. This condition, like higher quit rates among women than men, is commonly attributed to the existence and indeed widening of sex differentials in pay. If true, this indicates that further significant increases in female employment, which are in fact expected to occur, will probably necessitate wage increases.

Another source of increase in the supply of workers to the industrial sectors consists in increased over-all labor force participation rates among men as well as women, among the middle-aged as well as the aged. While post-World War II experience tends to confirm the hypothesis that upswings in the demand for labor can attract additional workers into the labor force, most of the latter were women and the boom period was characterized by rising prices (which might have served as an independent stimulant). And Long's conclusion that the proportion borne by the labor force to population corrected for changes in age and sex is relatively invariant with respect to wage changes still holds.

The foregoing is not intended to imply that the growth of the labor force will cease within the next few decades. Recent population increases of unexpected magnitude, plus a continuance of the trend toward greater participation by women, will probably ensure the continuing high rates of growth of the labor force in the next decades ahead. But growth in population implies growth in demand for labor as well as in its supply, and we are interested in what course real and money wages will take in response to growth in demand for nonagricultural labor if such is required to produce an increase in national income per capita. Since our guess is that no new reserves of underutilized labor comparable to those tapped during the twenties have been uncovered to date, if, in some future decade, a realized increase in per capita income equal to or greater than that which occurred in the twenties should be associated with an equivalent increase in the demand for nonagricultural labor, the latter would be likely to result in greater increases in real wage rates. And if one assumes (quite reasonably) that prices are not likely to fall farther and faster in such present or future period than they did in the twenties, an equal increase in the demand for labor would be accompanied by (more sharply) rising money wage rates.

This tendency would be reinforced by another important development in most of the nonagricultural labor markets since the twenties: the great rise in union membership and bargaining power, which contrasts sharply with the decline in union membership, both absolutely and, a fortiori, relative to the expanding labor force during our prosperous base period. There has been some disagreement concerning the ability of unions appreciably to raise money wages over considerable periods of time. I believe that they can do so within limits, that they have done so, and that they are now doing so. In any event, it is of interest to observe that union wages fell less than nonunion wages during the downswing of 1920-21 and rose more during succeeding upswings and that, within given industries, union wages generally remained above non-union wages during the twenties. It is reasonable to expect that, during any comparable period of prosperity, the more thoroughly organized contemporary unions would independently cause money wages to rise. And their ability to

produce this result would, other things being equal, be greater the more "imperfect" the remaining reserves of underutilized labor.

LORIE TARSHIS: These two papers which focus attention, in one way or another, upon the saving-investment mechanism deserve serious consideration. The one in considering one of the main determinants of business saving and the other in raising questions as to the significance of the fact that a great deal of business investment is internally financed raise important matters.

There are points in both, however, which can be questioned.

In the first place, I doubt whether Professor Salant's statement of the condition for Say's Law to be valid is correct. He seems to say that if units equate their investment to their saving, all will be well: full employment will be secured. He arrives at this conclusion on the basis of a perfectly acceptable statement: that if an increased desire to save is matched by increased investment, no pressure toward a change in income will come into being; this is presumably the significance of the condition that saving and investment are not performed for different reasons. But from there, he has no justification for proceeding to the statement that if more saving leads to more investment, income will remain unchanged. Indeed, in just this situation, a most unstable condition exists. If firms save more because business gross product rises and this leads them to invest more, a built-in accelerator comes into operation.

If Say's Law is valid in such a model, then far from its leading to steady employment, it leads to extreme instability. I suggest that the consequences of Say's Law need to be re-examined.

Professor Lintner's investigation of dividend policy is extremely promising. It is impossible not to admire the methodology he follows and the industry and scale of the whole enterprise. I do want, however, to raise a few points about his results.

In the first place, I believe he has dismissed rather too readily alternative explanations for dividend policy. To take an example, the lag in the behavior of dividends behind changing profit levels could also be explained in this way: a firm instead of setting a normal dividend rate applicable, after enough time, to any level of profits could have different dividend rates for high, medium, and low profits (as a percentage of investment or equity). In a period in which most firms found, with only minor interruptions, their profits rising, such a rule would give the same sort of results as Professor Lintner's. I do not understand how it can be rejected.

A second matter: I cannot see any ground for satisfaction in the apparent ability of a relatively simple formulation to "explain" dividends over a very long time span. In fact, it would make me suspect the results, if nothing else did. Everything else in the economy changed in those years: it seems unreasonable that these many changes exerted no influence upon dividend policy. Only if they were really neutral, or offsetting, would the applicability of so simple a function to, or its apparent stability over, so many years be significant. If there are grounds for expecting that such things as the rise of public placements, the administration of Section 102 of the Revenue Act, and other changes in taxes (corporate and personal) influenced dividend policy, the results appear to be a bit too good.

ECONOMIC GROWTH IV. THE INCREASE-OF-
CONSUMPTION PART OF ECONOMIC GROWTH
ELASTICITY, CONSUMPTION, AND ECONOMIC GROWTH*

By ELIZABETH W. GILBOY
Harvard University

I

When Dr. Black asked me to participate in one of the ten sessions on the growth of the United States economy, he suggested that I deal with the analysis of price and income elasticities. I told Dr. Black that I would prefer to present some of the ideas and preliminary empirical results which have arisen in the course of my more recent research in consumption and that this would entail a somewhat unorthodox discussion of the role of elasticities in consumption measurement.

Therefore, I shall not deal directly with price and income elasticities in this paper. Rather I should like to suggest that it is necessary to dig beneath derived concepts such as elasticities and demand curves to more fundamental structural relationships¹ and to co-ordinate these relationships with the rest of the elements of the economy. I would also abandon Marshallian partial analysis for a more integrated and operational scheme.

If we are to understand our economy and the dynamics of its growth, the consumption of households cannot be handled by itself but must be considered with respect to its interaction on and with the other sectors of the economy. One useful general scheme for so doing is the simplified general equilibrium system known as input-output analysis. This system has the important advantage of disaggregating not only consumption but also the other sections of the economy into classificatory units more operationally significant for the analysis of actual economic and industrial activities.

The understanding and measurement of consumption in relation to the rest of the economy does not appear to have been appreciably advanced by the numerous attempts to derive demand curves nor by the many empirical studies of price and income elasticity. It has become

*I wish to express my appreciation for the stringent criticisms of this paper made by Wassily Leontief, Barbara Berman, and other colleagues on the staff of the Harvard Economic Research Project. I wish also to acknowledge the financial aid and encouragement given by the Rockefeller and Ford Foundations to the consumption research as part of the general research program of the Project.

¹W. Leontief, "Input-Output Analysis and the General Equilibrium Theory," to be published in the Varenna Conference volume.

almost a convention to go through the empirical routine of computing elasticities when questions are asked concerning demand without considering what this implies in operational terms. I was interested to find during the discussions at the recent Universities-National Bureau Conference at Princeton that I am not alone in holding this view.

We really know little about basic structural relationships such as the aggregate consumption function and even less about functions for the constituent elements in aggregate consumption. This cannot be blamed on lack of data or lack of effort, but rather on an unsystematic and unco-ordinated method of attack. There are a lot of separate studies in the field of consumption, quite useful in themselves for special purposes and quite useless for obtaining an integrated understanding of the role of consumption in the economy as a whole. The parts do not fit together, because there is no underlying theoretical reason why they should.

II

For reasons which will become clear as I proceed, I shall pause to examine the familiar concept of elasticity. Elasticity is defined as the ratio between incremental and average consumption or demand; i.e.,

$$\eta = \frac{\frac{dx}{dy}}{\frac{x}{y}}$$

where x is quantity purchased or consumer expenditure, and y is price or income, depending on whether one is dealing with price or income elasticity. In this paper, I shall deal with income and expenditure relations, with prices accounted for implicitly by deflation, although I shall later suggest that prices may have a special place in influencing what may be called structural change in consumption.

In Keynesian terminology the numerator of the above fraction is the marginal propensity and the denominator the average propensity to consume. For the simplest functional form, i.e., a straight line through the origin, the two are constant and identical and income elasticity is therefore unity. Ordinarily marginal and average propensity to consume are not the same. If the consumption function is linear but not homogeneous, or curvilinear, elasticity will vary from point to point on the curve, except in the special case of a linear log function.

Such measures are characteristic of the basic functional relationship between consumer expenditures and income and each has its particular advantages. It may be worth recalling that the only one of these measures which, by itself, enables one to identify the curve is the average

propensity to consume. This cannot be done with either elasticity or marginal propensity coefficients without additional information or assumptions.

For the purposes which we are considering here, namely, the growth of our economy, it seems more useful to deal with the components of elasticity—the average and marginal propensities to consume—rather than with elasticity itself. These components are simpler and more fundamental concepts and it is frequently desirable in fact to differentiate between incremental and average rates of consumption. It is not possible to tell from elasticity coefficients alone whether changes in elasticity are due to changes in average or marginal propensities or both. It may be worth noting that a lack of recognition of this fact on my part led to a rather extended controversy with Lord Keynes in the late thirties. ("The Propensity to Consume," *Quarterly Journal of Economics*, November, 1938, and August, 1939.) More important, it is easier to incorporate the marginal and average relationships separately into systematic analysis of the whole economic structure.

Actually, present consumption research seems to be tending in this direction, as judged from current economic literature and discussions on consumption. There appears to be increasing dissatisfaction with elasticity studies as such and present research tends towards the separation of the average and marginal characteristics of the consumption function or functions. Bronfenbrenner's use of average and marginal propensities in his recent study of redistribution and consumption may be cited as a case in point. (M. Bronfenbrenner, T. Yamane, and C. H. Lee, "A Study in Redistribution and Consumption," *Review of Economics and Statistics*, May, 1955.)

Our problem is to find out and measure the structural characteristics of consumption for the United States and their influence on its growth. This involves not only the determination of consumption functions for the goods which people buy and the stability of such relationships in time and place, but also the measurement of the interrelationships among consumption and the other parts of the economy. The job is incomplete until this final step is taken.

From an empirical point of view this is a rather large order but it is being tackled by a number of research organizations. The economic variables which have a significant quantitative effect upon consumer expenditures must be determined and here it is important to differentiate between those determined outside of the strictly economic structure (such as family size) and those determined within the economic system itself. One must also select the mathematical form of the functional relationships which gives the most adequate quantitative description of their characteristics, determine their stability, and finally their quan-

titative interdependence with other structural relations in the economy.

The recent article by Paradiso and Winston² on measures of prewar and postwar consumption sensitivity demonstrates very well the need for a general over-all scheme. There is considerable discussion of the effect of consumption changes, particularly with respect to major consumer durables, upon individual industries. But no method of specifying precisely what these effects are or of measuring them quantitatively is proposed. It is here that a general operational scheme can be of great assistance. With a simplified equilibrium system of linear approximations, such as input-output analysis, it is possible to trace quantitatively throughout the economy the direct and indirect repercussions of change in consumer expenditures. If expenditures on automobiles, for example, increase (this would be shown by a quantitative change in the marginal and average propensities to consume for automobiles), one can show by how much this will affect the output of the automobile industry itself; its suppliers, such as steel, glass, electrical machinery, etc.; the suppliers of these industries and so on throughout the whole economy. This sort of quantitative analysis of indirect as well as direct effects is important, not only for a highly industrialized economy like the United States, but also for the economies of so-called "underdeveloped" countries where the effects of establishing new industries need to be understood and measured in relation to all parts of the economic structure.

The increasingly articulate dissatisfaction with the present state of consumption research, particularly in connection with the analytical and empirical problems of economic growth, may perhaps be interpreted to lie basically in the search, as yet implicit, for some way in which consumption problems can be more closely integrated with those of the rest of the economy. This can only be done if one openly faces the necessity of analyzing and measuring consumption relationships within the general framework of an operational scheme or model for the whole economy.

III

The remainder of the discussion will draw upon the research on the structure of consumption which is now going on at the Harvard Economic Research Project within the general framework of input-output analysis. Our ultimate goal, which I do not propose to discuss here, is the inclusion of consumption and labor, the demand and supply aspects of the household sector, into the structural matrix for the United States economy. However, illustrations from the empirical work of my colleagues and myself and our preliminary observations have direct bear-

²L. J. Paradiso and C. Winston, "Consumer Expenditure-Income Patterns," *Survey of Current Business*, September, 1955. See especially Section II, "Income Sensitivity of Consumption Expenditures."

ing upon the general topic of these meetings, whether one accepts input-output techniques or not.

We are proceeding as follows: (1) Both time-series and cross-section data were used. The former are mainly Department of Commerce personal consumption expenses (1929-50) translated into the Bureau of Labor Statistics 192-industry classification scheme and deflated to 1947 dollars by Marvin Hoffenberg. (These series were prepared by Hoffenberg from generally unavailable material and lent to the Project for experimental purposes.) The cross-section data include the 1935-36, 1941, and available postwar consumer expenditure studies. The translation of budget categories into the 192-industry classification has been completed by Nancy Bromberger. (*Report on Research for 1954*, Harvard Economic Research Project, Appendix III.) (2) A linear function has been chosen for investigation because it is easier to handle computationally in any general model, not only in the input-output system. (3) Comparisons of postwar and prewar data will be made to examine the stability of the functional relations. (4) The isolation of the income effect is being attempted by the investigation of the quantitative significance of other variables, such as family size and type, region, city size, farm households, and prices upon consumer expenditures.

IV

The following observations on the preliminary results of our research in the past year and a half may be stated.

In the first place, linear functions appear to be a reasonable approximation to many income-expenditure relationships, particularly when the data are time series. As an illustration, I am presenting the consumption coefficients and intercepts (See Table 1) for a 20-industry model computed by Vernon Lippitt from the Hoffenberg data, with two sample charts. These coefficients are marginal propensities to consume. We feel that these coefficients are exploratory and not suitable for operational use, particularly in matters of policy. (For a statement of the reasons, *ibid.*, Section E.) Eventually we expect to have more detailed and accurate ones based on cross-section data. The sample charts (I and II) indicate the characteristic result which we have found; the function is approximately described by a straight line, not usually homogeneous; i.e., there is an intercept. The assumption of proportionality does not appear to hold for many of the consumption sectors of the economy.

Curvilinear functions more often characterize relations based on cross-section data, but such functions can often be broken down into a series of linear subfunctions with reasonable results, particularly as the relation for the bulk of the population (up to about \$4,000 income pre-

TABLE 1

SUMMARY OF ANALYSIS OF HOFFENBERG DATA FOR LINEAR RELATION BETWEEN
INDUSTRY ALLOCATIONS TO HOUSEHOLDS (Q_i) AND AGGREGATE DISPOSABLE

$$\text{INCOME } \left(\frac{Y_d}{P_v} \right), \text{ AT 1947 PRICES}$$

$$Q_i = a_i + b_i \left(\frac{Y_d}{P_v} \right) \text{ (YEARS 1929-41, 1946-50)}$$

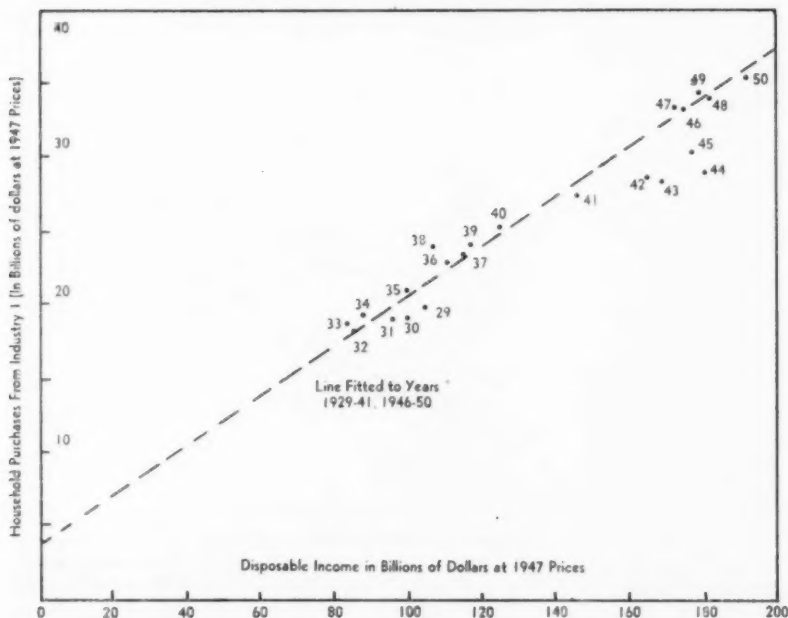
Industry No. (i)	Industry Title	b	In Millions of dollars a	r	r ²
1	Agriculture, fisheries, food, tobacco.....	0.1683	3,833	0.986	0.972
2	Textiles, apparel, leather, miscellaneous..	0.0679	3,458	0.964	0.930
3	Lumber, wood products, furniture, fixtures*	0.0091	65	0.951	0.905
4	Paper, printing, publishing.....	0.0112	122	0.988	0.975
5	Chemicals.....	0.0115	89	0.989	0.978
6	Products of petroleum and coal.....	0.0149	3	0.972	0.944
7	Motor vehicles and rubber products.....	0.0321	1,269	0.900	0.810
8	New construction and maintenance.....	0.0017	14	0.957	0.916
9	Iron and steel, nonferrous metals.....	0.0001	4	0.913	0.834
10	Fabricated metal products.....	0.0056	123	0.978	0.957
11	Machinery (except metalworking and electrical).....	0.0128	658	0.989	0.969
12	Metalworking machinery.....	0.0002	13	0.959	0.919
13	Electrical machinery.....	0.0108	567	0.962	0.926
14	Other transportation equipment.....	0.0014	94	0.987	0.974
16	Transportation (indirect).....	0.0134	24	0.994	0.988
17	Trade (indirect).....	0.1557	651	0.996	0.993
20(Part)	Eating and drinking places.....	0.0891	2,984	0.969	0.939
—	Governments (indirect).....	0.0571	1,195	0.984	0.968
	Total	0.6629	412		
18	Bill of goods, households (Gilboy).....	0.1457	104		
		0.8086	516		

* Year 1939 omitted; error in Hoffenberg data.

NOTE: Computed by Vernon Lippitt. For discussion of analytical and statistical problems involved in the interpretation of these coefficients and intercepts, see HERP, *Report on Research for 1954*, Section E, Part II (holographed).

war and \$6,000 postwar) can be well approximated by a straight line. This leaves the upper income groups with a different function, for which no approximation, linear or otherwise, is good, since the data are poor from a sampling standpoint. For our own purposes (linking consumption with employment and wage distributions and experimenting with income generation), we may well decide to fit linear subfunctions to the cross-section income and expenditure distributions, or we may omit the points for the upper income groups, as their consumption usually forms a minor (11 per cent) proportion of the total. (Estimate based on weighted average for all consumption for urban families in

CHART I
HOUSEHOLD PURCHASES VS. DISPOSABLE INCOME FOR OUTPUT OF INDUSTRY 1:
AGRICULTURE, FISHERIES, FOOD, AND TOBACCO
In Billions of Dollars at 1947 Prices, Producers' Values

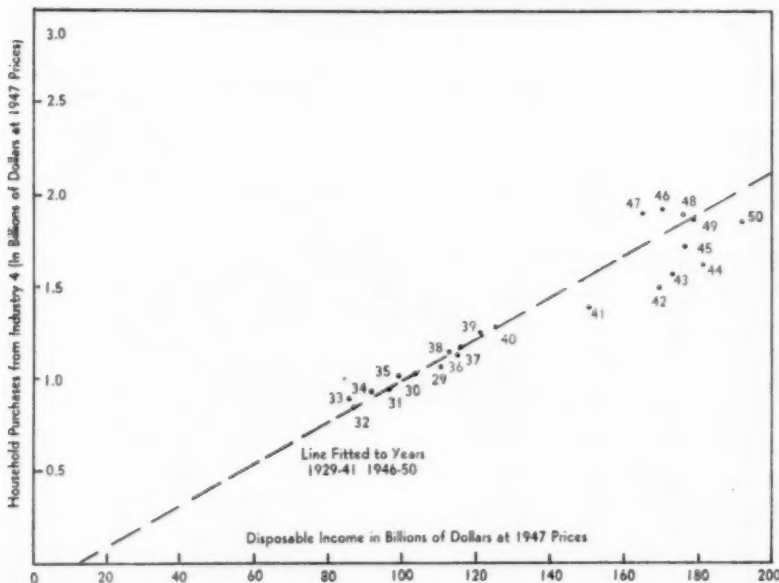


1935-36, prepared by Barbara Berman. Irwin Friend reports that this percentage had risen to 24 per cent in 1950.)

Charts III and IV present prewar and postwar functions in 1950 prices for urban food and clothing consumption derived from cross-section studies. The food function is clearly nonlinear, while clothing shows a closer approximation to linearity, particularly for 1935-36. It is interesting, also, that for clothing we appear to have an almost perfect homogeneous consumption function for the prewar period, with a proportional relationship between clothing expenditures and income. It should be noted that the influence of family size has not been removed in the clothing functions but has been accounted for in the food functions. The 1950 scatter for clothing, based on preliminary sample data, lent by Dorothy Brady, indicates some shift in the schedule and shows signs of curvilinearity. However, the preliminary nature of the 1950 data and the neglect of (within-the-year) price changes induced by the Korean war do not permit firm conclusions at this stage. Further discussion of the technical problems connected with these exploratory

CHART II

HOUSEHOLD PURCHASES VS. DISPOSABLE INCOME FOR OUTPUT OF INDUSTRY 4:
PAPER, PRINTING, AND PUBLISHING
In Billions of Dollars at 1947 Prices, Producers' Values

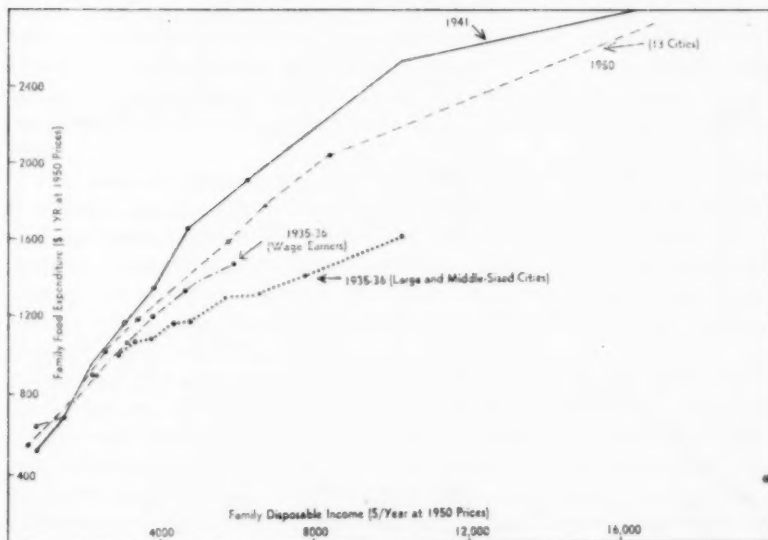


analyses are contained in the following Project memoranda: V. Lippitt, "The Isolation of the Income Effect for Food" (hctographed, July, 1955), and B. Berman, "Time-to-Time Comparisons of Income-Expenditure Patterns; Food and Clothing" (typewritten, October, 1955).

Our exploratory analyses of both time series and budget studies—illustrations of which are given above—lead us to believe that cross-section data offer a more fruitful field for the empirical derivation of the structural relations of consumption in which we are interested. Consequently we have now begun the computation of marginal and average propensities to consume from prewar and postwar budget studies in terms of the 192-industry classification scheme.

The reasons for this decision to concentrate on budgetary material are, briefly: (1) the basic structural relations between consumer expenditures and income are obscured in time series which measure national aggregates of income and expenditures from year to year; (2) the relationships observed (as in Charts I and II) are obviously affected by autocorrelation of trends, cycles, and other variables in both income and expenditure; their elimination by statistical means still leaves un-

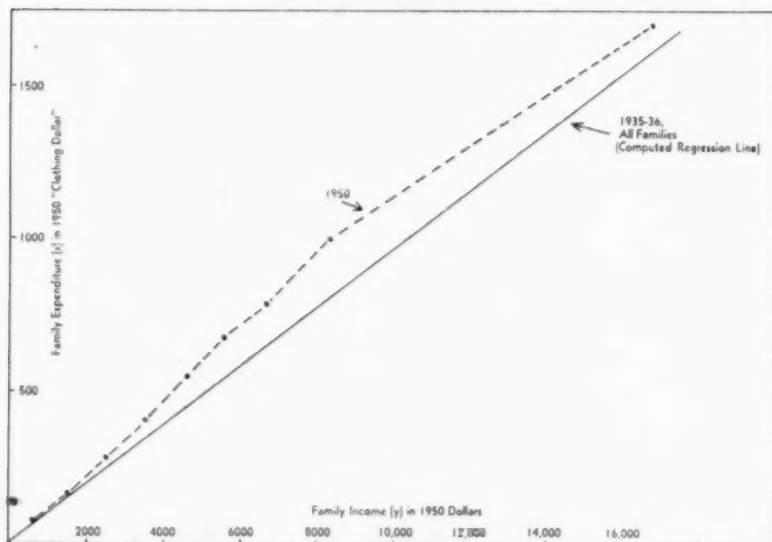
CHART III
FOOD EXPENDITURE VS. DISPOSABLE INCOME FOR FOUR-PERSON FAMILIES IN
1935-36, 1941, AND 1950
 (Chart X of V. Lippitt's 6/24/55 Report Reworked with 1950 As Base Year)



certainty as to what the corrected figures mean; (3) the disaggregation available in cross-section data by expenditure items, family characteristics, income levels, etc., permits a detailed quantitative investigation of the variables affecting consumer expenditures and the isolation of income-expenditure relations at any one time; (4) the wider income range of budget study data allows explicit analysis of the effect of size distribution of income; (5) the size of the sample in many budget studies enables one to use stochastic techniques; (6) comparison of consumption functions derived from budgetary studies in different years afford fundamental information as to structural changes in consumption over time which cannot be secured from the analysis of time series.

The fact that nearly all the consumption functions examined are non-proportional, with a positive or negative intercept on the expenditure axis, coincides with Bowley's findings some years ago in his analysis of a linear preference system (R. G. D. Allen and A. L. Bowley, *Family Expenditures*). The existence of this constant inevitably leads to speculation as to its meaning. Statistically the intercept represents the errors of curve fitting. In the input-output system, for example, W. Duane Evans regards it as an error of linear approximation ("Input-Output

CHART IV
FAMILY EXPENDITURES FOR CLOTHING VS. FAMILY INCOME 1935-36; 1950
(IN 1950 DOLLARS)



Computations," to be published in the Varena Conference volume). It could also be looked upon as evidence of discontinuity, particularly in the negative case. A negative intercept shows that a consumer item is not bought below certain income levels and may be expected to occur more frequently the more consumer expenditures are disaggregated (e.g., Cadillacs will enter consumption at a higher income level than automobiles in general).

It is a temptation to invest this "intercept" with economic meaning—especially when it is positive—as indicative of some minimum standard of consumption which society is expected to provide. Actually, because of lack of data at low incomes, it is really not justifiable to extend the fitted line to the expenditure axis at all. However, the intercept does point up the problem of measuring social consumption minima—a very real one for any growing economy. It seems reasonable to postulate that any given society at any one time is, at least implicitly, committed to provide some minimum of consumption to its labor force and population—a minimum probably physically defined in the case of crude economies, socially defined in the case of complicated industrial structures like the United States. I cannot here go into the implications of this idea for the determination of the labor supply, the part played by income in the determination of consumption functions, the treatment

and definition of savings, and so on. Such a consumption minimum may well be analogous to Professor Friedman's permanent component of income and determined by economic factors operating over the individual, family, or even the economy's life cycle. Professor J. S. Duesenberry's analysis of the influence of past income upon consumption behavior also suggests the formation of consumption habits which may persist and which need to be taken into account in the study of economic growth (*Income, Saving and the Theory of Consumer Behavior*, 1949).

This leads to the necessity of re-examining the definition of income. It is quite possible that the concept of income may have to be broadened for some aspects of consumption analysis to include many more variables than disposable annual income—variables such as the effects of past and expected incomes, net assets, credit availability, and other factors influencing the consumer's buying power and actual current expenditures.

The idea of a consumption minimum has been suggested by a number of others. R. Goldsmith, in his monumental volumes on saving, *A Study of Saving in the United States* (Volume I, 1955), has computed linear savings functions for the United States which show an intercept on the income axis, changing over time. This he interprets as representing a minimum income people must have before they begin to save—another way of saying that people will not save until they have satisfied minimum consumption levels. R. Stone has developed a linear demand system ("Linear Expenditure Systems and Demand Analysis: An Application to the Pattern of British Demand," *Economic Journal*, September, 1954), of which Bowley's is a special case, in which there is a minimum of consumption expenditure invariant with income. K. Maiwald has expressed a similar idea in suggesting a measure of the resistance of consumption and analyzing its effect on savings in periods when employment deviates from full employment levels ("The Effects of Maintained Consumption in the Unemployed Sector," *Economic Journal*, March, 1955).

From the point of view of economic growth, it would be convenient if the intercept on the expenditure axis could be used as a measurement of changing consumption minima which the economy is expected to maintain. Chart III shows that the intercept for food remained about the same from 1935-36 to 1950, although the shapes of the functions varied widely. In the case of clothing (Chart IV), the intercept is negligible both for prewar and postwar periods.

This is not inconsistent with the behavior one would expect in the case of the food total, could the intercept be given an economically meaningful interpretation. But it seems clear that the measurement of

minimum consumption levels is more complicated and will have to be attacked independently of the statistical vagaries of curve fitting.

So far our work indicates that the influence of region and occupation are not quantitatively significant. The effect of family size or type and, to a lesser extent, city size, however, are. The family size effect seems to be multiplicative rather than additive. Farm consumption patterns appear to be quite different from those of the urban population and it is clear that the farm group has got to be handled separately. The definition of farm income presents many difficulties and the imputed items in farm consumption, i.e., food, clothing, etc., produced and consumed at home, have their own statistical and analytical problems. In addition, there may exist a real difference in farm consumption habits.

We have not attempted as yet to take account of price changes except by deflation, and the explicit introduction of prices offers many difficulties in an integrated system. They cannot be solved by demand curve analysis, and when the necessity of handling problems of substitution arises, some other method of attack must be devised. It does not seem unreasonable to assume (subject to empirical test) that price changes for many consumer goods are small in the short run and do not appreciably affect consumption patterns. This is not true for competing goods, but short-run substitution effects of this kind will ordinarily be subsumed within the aggregation scheme necessitated by any operational model for dealing with all elements of the economy simultaneously.

Most people will continue to buy the goods they are accustomed to buy unless there occurs a large price change or a series of cumulative small price changes over time. This hypothesis assigns to prices a dynamic role in consumption change. In fact, price change may be looked upon as one of the chief factors in initiating changes in taste and in introducing new commodities to large-scale consumption. It might work like this: first, a new consumer good bought by the wealthy; then drastic price cutting along with mass production, and finally mass consumption. Here price becomes an important mechanism for creating changes in taste and modifying the basic structural relationships in consumption. This is only one aspect of the general problem of structural change, now under intensive investigation in various industrial sectors of the economy, and the process by which new techniques of production are introduced and spread in our economy. Changes in taste may be looked upon as analogous to technological change in industry. (For more detail on the research in technological change and the preliminary statement of Dr. Anne Carter's theoretical model, see *Report on Research for 1953*, Section D, and *Report on Research for 1954*, Section B, Part II.)

It is only fair to note that the evidence presented by A. Oxenfeldt on

the introduction of television into the United States economy in a paper, "A Dynamic Element in Consumption: The TV Industry" (presented at the Universities-National Bureau of Economic Research Conference on Consumption and Economic Development, October, 1955), does not appear to substantiate the above hypothesis. One of the noteworthy results of his data appears to be the lack of any significant effect of either price or income upon television sales. (Does this mean that television has already become a part of the minimum level of living of a large portion of the American populace?) The only variable which showed a significant relationship was education; i.e., those who have gone beyond high school did not and do not buy television sets (though this effect is lessening) to the extent that the less well educated do. It is possible that the price effect on television sales has been obscured by the unusual savings backlog of the postwar economy and by the durable consumer goods starvation resulting from wartime regulation. It will be interesting to see whether price reductions will eventually play a role in establishing television as an item of mass consumption, which the industry has not as yet completely achieved, or whether television continues to be what might be called an "intercept phenomenon," in the sense suggested above in showing no relation to price and income changes.

V. Summary

The influence of consumption in the growth of our economy can best be assessed by the determination of its fundamental structure and the stability of that structure in quantitative terms over time. For this purpose the components of income elasticity—the marginal and average propensities to consume—are more useful operationally than elasticity itself. It is not possible to tell from an income elasticity coefficient whether its changes result from changes in the incremental or average rate of consumption or both. It is frequently important to differentiate between them. Price elasticities may be of interest in measuring substitution effects among specific commodities, but the major role of price change is seen as a long-run phenomenon of facilitating changes in taste. Elasticities may be useful for special purposes (they have the advantage of being independent of scale units) and can, of course, always be derived from the two propensities.

The analysis of consumption is more useful if it is related to other parts of the economy, so that the impact of specific consumption expenditures upon various economic sectors—or vice versa—can be measured. From this point of view one needs some scheme for attacking the economy as a whole with all its related elements. Perhaps the most operationally feasible scheme of this kind now available is input-output analysis. Continuing research indicates that the rigidity of its initial

assumptions can be and is being relaxed as more accurate data become available. Proportionality is not essential, for example, and curvilinear relations may be approximated by breaking down such functions into linear subsections. Substitution problems, at least in the industrial sectors, can be attacked by linear programming methods. It is not clear that they can be applied to the consumption sector.

Preliminary empirical results show that linear consumption functions are good approximations (within the 5 per cent level) for time series, and less good for cross-section data, where the subdividing procedure mentioned above will need to be used. The fact that nonproportionality appears to characterize the functional relations between many consumer expenditures and income has led to the consideration of the possibility that part of consumer expenditures may not vary with income and may indeed constitute a minimum consumption level which any given society at any one time is expected to provide. Since the observed intercepts are statistically determined by the type of curve fitted to the data, it seems unlikely that the intercept itself can be used to measure any such consumption minima. There must be further investigation of the concept, both theoretically and empirically, with a view to finding out whether this minimum in fact exists, and if so, how it can be measured. The implications for the United States economy are, of course, obvious, particularly as to the maintenance and expansion of consumer buying in the years to come.

For detailed comparisons of consumption structures, cross-section data appear to be more useful than time series. Particularly for problems of growth and changes of taste over time, the comparison of such functions for different years throws more light on structural change than straight time-series analysis can provide. The cross-section functions have the advantage of a wider income range and make it possible to consider explicitly the size distribution of income, which provides the link between the structure of consumption and the structure of employment and wages in the system as a whole.

In our economy it does not appear that regional and occupational differences in consumption patterns are important for major categories, although this may not be true for individual consumer goods or within income groups (This statement is based largely on prewar data, with only preliminary and scattered postwar material. When the data from the 1950 consumer-expenditure study are made available, it will have to be re-examined.) Intra-income group consumption patterns probably vary rather widely and offer a fascinating research opportunity—for which few data are available except possibly to marketing and advertising firms. On the other hand, family size and type and city size seem to have quantitative significance in influencing consumption. V. Lip-

pitt's analysis showed, for instance, that each child added 9 per cent to family food expenditures (*op. cit.*, page 27).

It has been suggested that, in the short run, price changes, unless relatively large, have a minor influence on consumption patterns. This postulates a stability of consumption functions for the economy as a whole which it takes a sharp price change to upset. Such stability is suggested by the comparisons of budget studies over the last half century or more in the United States made by Dorothy Brady and Eleanor Snyder, some of the results of which were presented by the latter in a paper, "The Impact of Long-Term Structural Changes on Family Buying and Saving," at the Universities-National Bureau of Economic Research Princeton Conference, in October, 1955. Price changes are thus assigned a key role in the phenomenon of structural change, manifested in the consumption sector by changes in taste and the introduction of new commodities. The structure of consumption will be altered as a result.

INNOVATION AND GROWTH

By JAMES DUESENBERY
Harvard University

Business cycle theorists have always given shifts in the distribution of demand an important role in their theories. In a number of theories innovation is taken to be the primary driving force behind the growth of aggregate demand, and variations in the rate at which innovations occur or in the rate at which they are exploited provide the basic explanation for fluctuations in aggregate income. Various types of innovations are discussed in these theories, but the changes in the distribution of demand associated with the development of new industries or new products and the changes in the geographical distribution of demand associated with the exploitation of the resources of underdeveloped areas are usually cited as leading examples of the effects of innovation.

Changes in the distribution of demand can influence the rate of growth of aggregate demand either through their direct influence on the rate of investment or through their influence on the propensity to consume. I shall first discuss the impact of innovations on the propensity to consume and then consider their direct effect on investment.

Effects on the Propensity to Consume. It is natural to suppose that new types of consumer goods do have an influence on the propensity to consume. We know that in many cases consumers have chosen to spend increased income on new products rather than on more of old products. Presumably, then, the new products are more desirable than additional units of the old ones. It seems to follow that the new products are better competitors for the consumer's dollar and, therefore, tend to reduce saving—not absolutely, but by comparison with what it otherwise would have been. If income were constant, that would imply a falling savings ratio. Since income has been rising for a long time and the savings ratio has also been constant, it can be taken to imply that the savings ratio would have risen had it not been for new consumers goods.

That argument sounds plausible enough, but it only holds with respect to fixed consumer preferences. Since our culture and social structure have been changing rapidly, it seems clear that preferences have been changing. When preferences are changing, the response of consumers to the appearance of new products tells us nothing about the effect of the new products on the propensity to save.

It does not follow that the introduction of new products has no effect

on consumption but we must use a different type of evidence to show that it does. The question turns on the relation of cross-section data savings ratios to long period aggregate data. The budget studies show that people with high incomes have higher savings ratios than people with low incomes. If we take those data at face value, they imply that a rise in aggregate income will, other things equal, produce a rise in the aggregate savings ratio. Since that expectation is not fulfilled, we may conclude that other things are not equal and use the introduction of new products to explain the apparent inconsistency between budget study and time-series data.

But we need not take the cross-section data at face value. Friedman has shown that when year-to-year variations in individual incomes are taken into account, the rise in the savings ratio with income is much smaller than that shown by single-year budget studies. Friedman puts it more strongly than that and says that the savings ratio does not rise with income at all. That may be an exaggeration, but it can be said that when we take account of transient income, the problem of reconciling the budget studies with the aggregate time-series data is much less vexing. If we add the effects of an increased degree of urbanization cited by Kuznets and others and the effects of increased liquidity and availability of credit cited by Tobin, there may be very little left to explain. If there is anything left, I am still prepared to throw in the relative income hypotheses as a makeweight. It is not necessary to assess the relative importance of these considerations. They are not inconsistent with one another unless pushed to extremes. For present purposes it is only necessary to say that taken all together they leave only a very little room for the notion that the propensity to save would rise if new products were not continually being introduced.

We can conclude then that innovation has relatively little effect on aggregate consumer expenditure.

Direct Effects on Investment. The notion that innovation has a positive effect on aggregate investment obtains empirical support from the obvious fact that a lot of investment does take place in rapidly growing industries. The argument which proceeds directly from the observation that innovation leads to investment in the fields in which it occurs to the conclusion that it produces a more or less equal increase in aggregate investment rests on the implicit assumption that either the innovation increases the propensity to consume or that aggregate income is not growing. If the innovations do not affect the propensity to consume, then in periods when income is growing and indeed even in periods when income is falling slowly, one would expect most of the positive effects of shifts in the distribution of demand to be canceled out. It is not necessary to accept a simple accelerationist view of the theory of

investment in order to say that. It is only necessary to suppose that the rate of growth of demand has some influence on the rate of investment, and it is necessary to assume that in order to support the position that the rapid growth of new industries generates investment. Whatever the effect of growth of demand on the rate of investment and whatever complications and qualifications to the connection between growth of demand and investment one makes, the argument cuts both ways. If growth of demand has an important influence on investment, then redistribution of demand encourages investment in some sectors and discourages it in others. If growth of demand has a weak influence on investment, the weakness applies both to the sectors gaining by redistribution and to those which lose.

At a first approximation, then, one can argue that redistribution of demand among sectors, whether due to innovations or systematic differences in income elasticities, has no net effect on the rate of investment. That is only a first approximation, and it applies only on the assumption that the industries which are growing at relatively high rates are in all relevant respects exactly like the industries which are growing at relatively slow rates. That assumption may be invalidated either because the rate of growth of an industry influences its behavior patterns in a systematic way or simply by chance correlations between differential rates of growth and the characteristics of different industries.

One systematic connection between rates of growth and investment arises from the limitations on the supply of funds for investment by individual firms. When there are no innovations and no important deviations of income demand elasticities from one, most industrial firms will be growing at rates of the same order of magnitude as gross national product. Some will grow a little faster; some a little more slowly. In those circumstances manufacturing firms are usually able to finance their own expansion without resort to borrowing while still paying out in dividends what they consider to be a reasonable proportion of profits.

Important innovations will make a few firms grow much faster than GNP and the rest a little more slowly. The firms whose growth is retarded may prove a little more generous about paying dividends since they have less need for capital. At the same time they may tend to expand capital faster than demand. In the latter case the eventual result will be a fall in their profits which will bring the supply of funds into line with demand. On the other hand, they may use their funds to repay debt, to pick up liquid assets, or to buy up the assets or securities of other companies. To the extent that the firms whose growth is retarded pay out more dividends or increase capital stock relative to demand, there is no change in the net contribution of the group to the income stream. But to the extent that the firms in question retain earnings at the same rate and

decrease their rates of real investment, they are making a negative contribution to the income stream.

The argument goes the opposite way for the small number of rapidly growing firms. They may pay out a particularly low proportion of dividends in order to finance an increased rate of investment. To the extent that this occurs, it offsets the tendency for slowly growing firms to pay out more in dividends. But the offset cannot be complete. The increase in growth rates resulting from innovation is heavily concentrated on a few firms and the decreases spread among many. The proportional change in dividend pay-out required to finance the high rates of growth is much greater than the proportional change required to adjust to slightly lower rates. To the extent that they take place, dividend adjustments are likely to have a net expansionary effect.

But the rapidly growing firms have another option. Suppose for the moment that entry into the field is closed. Then if the firms in a rapidly growing industry do not follow a policy of low dividend pay-outs and do not borrow or sell equities, their capital stocks will rise at a slower rate than demand. Intense utilization of capital and little pressure to reduce prices as technique improves will generate higher profit margins. Eventually they will be able to finance expansion out of internal sources without reducing the proportion of earnings paid out in dividends.

That kind of adjustment will only take place if entry is closed and if no firm in the industry is willing to cut dividends or go outside for funds in order to be in a position to cut prices and try to get a greater share of the market. When either of those conditions is not fulfilled, the rapid expansion of the industry will bring in outside funds and investment will exceed retained earnings. This will balance off any tendency for retained earnings to exceed investment in the more slowly growing sectors.

On general grounds there is no clear-cut reason for expecting that differential rates of growth will have a strong systematic effect on the excess of real investment over business saving. The empirical data do not show any tendency for the proportion of physical asset expansion financed by returned earnings to fall as the rate of expansion rises. That view is supported by Dobrovolsky's comparisons of retained earnings for large manufacturing corporations. Professor Lintner's paper presented at the third "Economic Growth" session arrived at the same conclusion by a different route. If there were no new entry after the very early stages of an industry's development, it would follow that innovations had no systematic effect on the excess of investment over business savings. But, of course, there is entry. Occasionally the early birds in a new industry manage to sew it up so tightly that no one else ever gets in. But that is not always so. In manufacturing, a large part of the

entry into growing industries consists of what is called "diversification" and does not cause the investment of funds from outside the corporate sector.

In the trade and service sectors, entry is much freer. Unfortunately, it may be somewhat too free. It is not at all clear how many more people go into business for themselves because new lines of trade and service activity are developed than would do so anyway. To some extent, at any rate, innovation merely redistributes entry into trade and service fields. However, it is true that because of the extreme localization of trade and service activities indivisibilities play an important role. As the number of types of trade and service activities increases, the number of establishments which can survive with a given aggregate demand in a given area increases. Since a certain minimum amount of capital is required for each establishment, proliferation of types of service tends to increase the amount of capital required per dollar of output. That argument is, of course, merely an extension of Professor Chamberlin's argument in *The Theory of Monopolistic Competition*.

The same argument applies to the geographical dispersion of demand though it is only significant with respect to small towns servicing agriculture.

From what has been said thus far it seems to me that we can conclude that innovation has a certain amount of effect on the excess of real investment over business saving, but the effect in question is certainly of the second order of magnitude.

Correlation of Growth and Capital Intensity. However, all the above argument rests on the assumption that the capital intensity of the industry where growth is increased by innovation is just the same as the capital intensity of industries whose growth is slowed by innovation. There is no systematic reason to assume anything else but that correlations between rates of growth and capital intensities may appear, and when they do, they are important.

When demand shifts from a less capital-intensive industry to a more capital-intensive industry, aggregate investment will increase and so will the excess of investment over business savings. If two industries earn the same rate of return on capital and have the same dividend pay-out and the same capital intensity, a redistribution of demand between them will increase the lending of the one by about the same amount as it increases the borrowing of the other. But when the industry gaining by the redistribution is the more capital intensive, the redistribution will increase borrowing more than it increases lending. That tendency may not be effective. The rapidly growing industry may refuse to borrow and either reduce dividend pay-out or hold down in-

vestment until its profit rate rises enough to cover its capital requirements without borrowing.

But if a rapidly growing industry is both capital intensive and at the same time cannot drag its feet in expansion, its high rate of growth may have a marked effect on the difference between investment and business saving in the aggregate.

The obvious example is the public utility and transport group of industries. Railroads, telephone, electric and gas utilities, and street railways are all very capital intensive. They all had ready access to capital markets in the periods when they were expanding rapidly. Partly because of their character as public utilities and partly because of the enthusiasm of promoters, they all expanded their capital at least as fast as demand (with the exception of the telephone industry in its earliest phase of growth). That, together with regulation, has kept their profit rates down and made them dependent on outside finance for expansion. These industries grew at a much faster rate than the rest of the economy during the period between the Civil War and the first World War. After that, telephone and electric utilities continued to expand rapidly, but the relative position of railroads and street railways declined so that the group as a whole has not expanded so rapidly since the first World War. There is every reason to think that the rapid growth of the public utility and transport group was an important factor in the growth of the whole system in the period before World War I. We might add that even here the picture is less clear than one would wish it to be. The public utility group did not increase its share of aggregate dollar demand. Its real output grew faster than real GNP but relative costs and prices fell at the same time. Costs fell partly because of reductions in labor costs, but also because of increased output. In the upshot the public utility group returned a fairly constant share of money expenditure and a fairly constant share of total capital stock. The result was, therefore, not so very different from what it would have been if output of public utilities had advanced at the same rate as aggregate output while costs had fallen at the same rate as in other industries. In effect, then, the tendency of the public utilities to become less capital intensive was offset by their relatively rapid growth.

A final consideration which also has a historical connection with the public utility group is the speculative reaction to rapid growth of demand in a particular industry. When demand for the products of an industry grows very rapidly, the firms who are first in the field are likely to earn high profits for reasons already given. The value of the equity of those firms will rise rapidly, not only because the present value of the earnings calculated at ordinary rates of demand is higher

than the initial investment, but because the growth in earnings tends to be projected into the future. The resulting increase in the value of the shares may itself be projected into the future so that a rapid and continuing rise in share prices takes place. That makes the purchase of the securities of new companies attractive and demand creates its own supply. Promoters are ready to organize new firms and float off the shares on the rising tide of speculation. It is easy to see that a process of that sort can create a situation in which capacity expands more rapidly than demand. Investment is increased temporarily. Such a boom has come to an end when profits begin to fall or when some weak enterprise fails. Afterward, investment is for a time lower than it ought to be in view of the objective situation.

Such a speculative reaction is a possibility and something very like it took place in the railroad field in the seventies and eighties. The events of those years provide the best example of Professor Schumpeter's theory of business cycles. But since that time the impact of speculative swings of that type has been much smaller partly because no single new industry has played so important a role in the economy and partly because few industries are so well adapted to speculative promotions.

During the twenties a process which was not fundamentally different took place in the apartment and commercial building field and may have played some role in other fields. No doubt innovations in other fields had effects analogous to those connected with the development of railroads. The connection of innovation and speculation has its place in business theory, but it cannot be given the central role except in the unique case of the railroad booms.

The argument just given seems to lead to the following conclusions: (1) The net effect of shifts in demand on the rate of investment is much smaller than the direct effect of such shifts as measured by the rate of investment in rapidly growing industries. (2) Nonetheless, innovations which change the distribution of demand do tend to have some positive effect on the rate of investment. (3) The magnitude of this effect depends on a number of circumstances, particularly the relative capital intensities of the industries gaining and losing by the shift, the competitive structure of the industries gaining by the shift and the risk and other factors conditioning the ability and willingness of the firms in the growing industries to obtain outside finance. As a historical matter, it seems probable that the ability of the American economy to grow rapidly and fairly steadily during the years between the Civil War and the first World War was considerably enhanced by the rapid growth of public utility enterprises which were capital intensive and heavily dependent on outside finance. I shall hazard the conjecture that the decline in the relative rate of growth of the public utility group as a

whole after the first World War tended to make the American economy a good deal less viable than it had formerly been. That tendency was masked for a time by ephemeral factors such as the postwar housing boom and the speculative boom in apartments and commercial buildings. In the end, therefore, I find myself taking a position fairly close to Professor Hansen's, though I have had to reach it by a more circuitous route.

Finally, it seems to me that we should not make use of the concept of autonomous investment at all. We should regard exogenous events, such as innovations, as factors which influence the response of investment to the level of income and the size and character of the stock of capital.

DISCUSSION

JOHN B. LANSING: There are at the University of Michigan two organizations currently engaged in research in consumption and demand: the Research Seminar in Quantitative Economics in the Department of Economics and the Economic Behavior Program of the Survey Research Center. I shall devote most of my time to the program at the Survey Research Center, which is much larger in terms of number of projects and number of economists engaged in research. But it is impossible to fail to mention one project in the Research Seminar. Daniel Suits and Peter de Janosi have just completed an econometric investigation of the demand for new automobiles which represents a major contribution to our knowledge of the automobile market. They plan to publish the paper next year. The Klein-Goldberger econometric model of the American economy already has been described in print.

Before discussing individual projects, it may be of interest to say a few words about the Survey Research Center, a branch of the University of Michigan which is largely self-supporting. The Center is financed by grants from foundations and by contracts for research with private business and with government agencies. The Economic Behavior Program of the Center, under the direction of George Katona, is concerned with the application of the survey method to economic problems. Emphasis is on cross-sections of the population of the United States, though other populations are sometimes sampled. While the dependent variables in our studies are economic, the independent variables include, in addition to financial information, demographic and psychological data about the individuals in the sample.

A large part of all the research in progress in the Program is in the field of consumption and demand. From the point of view of someone interested in the increase-of-consumption part of economic growth our studies have three objectives which should be discussed separately. A single investigation, however, may contribute to more than one of the three objectives. First, we are engaged in a series of studies intended to provide information about the current situation in the consumer sector and about probable short-term trends. Second, we are engaged in research intended to provide basic understanding of the structure of consumer demand. Third, we have in progress special studies of particular relevance to the problem of long-run growth in consumer demand. It will only be possible for me to describe each type of study briefly.

If the economy is to move steadily forward, responsible administrators both in and out of the federal government must have access to information about the current position of the economy. One of the basic objectives of the Surveys of Consumer Finances conducted by the Center in co-operation with the Federal Reserve Board is to contribute to the body of current economic intelligence. As the situation changes, the type of information required also changes. At the moment there is special interest in consumer debt, and questions about debt are being asked in the 1956 Survey of Consumer Finances. Interviewing on this survey will start in January. While information about the total debt

outstanding can be gathered from financial institutions, surveys are the only source of information about who in the population owe the money and how heavy the burden of payments may be in comparison to their incomes and assets. For example, it is from surveys that we have learned that debt in the postwar period has been a middle-income phenomenon. At the risk of oversimplifying, we may summarize this finding by saying that the rich do not need to borrow and the poor cannot obtain credit. In the 1956 Survey we are attempting to find the answers to such questions as, which income groups are responsible for the recent increases in debt?

Another class of information which contributes to the objective of providing economic intelligence is psychological information about optimism and pessimism among consumers. It is of value to government officials to have current information as to whether at a given time consumers feel well off financially, expect good times in the country, and plan to buy cars and durables in large numbers. Reports appear each March in the *Federal Reserve Bulletin* which provide such information from the annual Surveys of Consumer Finances. The Center also collects this type of data two or three times a year in surveys sponsored by other organizations. A monograph by George Katona and Eva Mueller bringing together the results of these surveys during the period of the Korean war is available. A second monograph reporting on the period since the Korean war is now nearing completion.

The second major objective—to contribute to basic understanding of consumer demand—is related to the first. Today's current analysis of the economic situation is tomorrow's economic history. In addition to the surveys of the current situation, we are engaged in a major investigation of the behavior of a panel of consumers over several years. We refer to the project informally as the "Ford Study" since it is financed by a grant from the Ford Foundation.

This project takes its start from the limitations of cross-sections drawn at a single point in time. In establishing causation, there are major advantages in following the same individuals and interviewing them repeatedly. Economic attitudes and behavior at time II may be explained in terms of the situation at time I plus events in the intervening period as they have changed the situation of the individuals being studied. A major objective is to investigate the relation between attitudes expressed in one interview and spending and saving in the subsequent period as measured in the later interview. In this study there is also particular interest in explaining the origins of economic attitudes and shifts in attitudes. Do people's feelings of optimism and pessimism shift in a purely random way or can these shifts be understood and, ultimately, predicted?

The sample represents a probability sample of the urban population of the United States. About 1,000 families are being interviewed four times each. The first wave of interviews was in June, 1954, the second in November, 1954, the third in June, 1955, and the fourth in November and December, 1955. A major problem in any study of this type is, of course, the loss of respondents from one wave to the next. We are holding open the books on the last interview as long as there is any reasonable hope of picking up interviews with more of our old respondents, but we can now estimate that the final figures

will show that in the fourth wave 70 per cent of the respondents in the first wave were still with us. Allowing for nonresponse on the first wave, we will have four complete interviews from 60 per cent of the original probability sample. Analysis of the data has barely begun.

The third objective covers several special studies which are intended to shed light on different phases of consumer demand. From the point of view of long-run growth in consumer demand, the market for services is of special interest. Under this head we are engaged in a study of the demand for travel. Whatever one may think about saturation of demand for durable consumer goods, there is no problem of physical saturation of the demand for travel. As people's incomes increase, they may conceivably increase almost without limit the amount which they spend on trips. We have interviewed a cross-section of the population about their recent trips in a National Travel Market Survey. We are now analyzing the effect of income and other factors upon their travel. One purpose of this investigation is to contribute to long-run forecasts of air travel made by the Port of New York Authority, which operates four major airports in the New York area.

Another special study is being carried on in connection with the Ford project. We are especially interested in the effect of innovations upon demand for consumer durable goods. A paper on acceptance of innovations was read by Eva Mueller at a conference in Ann Arbor last fall and will be published in Volume III of *Consumer Behavior*. A basic question in this field is whether innovations lead to increased consumption or merely to the substitution of new products for old. This paper lends support to the proposition that innovations do increase consumption. The effect of interest in new features on purchases of the traditional consumer durable goods is examined first. The data suggest that people who express interest in these features are likely to replace obsolescent appliances which are still mechanically sound. On the other hand, people who already own a modern stove, refrigerator, television set, and washing machine become interested in acquiring the "new" durables, such as an air conditioner or clothes dryer.

Other special studies of consumer demand are in progress, for example, a study of the demand for life insurance, but the examples cited may give an impression of the work in progress at Michigan.

IRWIN FRIEND: I will present my comments in three parts: the first will be a discussion of Dr. Gilboy's paper dealing with research on consumption at Harvard; the second will summarize the Study of Consumers' Expenditures, Incomes and Savings now in progress at the Wharton School of the University of Pennsylvania; the third will consider briefly Professor Duesenberry's paper.

There are several questions raised by Dr. Gilboy's paper. First, though this may be an exercise in semantics, I doubt that our understanding of consumption relationships is deficient because they have not customarily been studied as part of a complete general equilibrium system such as given by the input-output framework of analysis. Our understanding of aggregate consumption or individual demand relations is certainly limited, and there may very well be "increasingly articulate dissatisfaction with the present status of consump-

tion research." However, I do not see that the solution is in the search "for some way in which consumption problems can be more closely integrated with those of the rest of the economy"—again such as given by input-output analysis. The latter type of analysis is undoubtedly of considerable interest and importance in its own right, but there is no obvious reason why it should lead to better consumption functions.

Second, since it appears that primary reliance will be placed on consumer expenditure studies to obtain income propensities and to isolate the effect on consumption of a number of other variables as well, I would like to inquire whether it is intended to accept "structural coefficients" derived from cross-section data where these are radically different from the corresponding coefficients derived from time-series data. Abstracting from the theoretical problems involved, is it justifiable to rely on cross-section data for those goods and services where the level and/or trend of expenditures indicated by consumer surveys is markedly at variance with the indications of time-series data?

For example, Dr. Gilboy presents cross-section data which seem to imply that the weighted average proportion of income spent on clothing by urban consumers increased from 9 per cent in 1935-36 to 11 per cent in 1950; aggregate Commerce data for the total U.S. point to a decrease from 12 per cent to 11 per cent over this period, the latter movement apparently part of a fairly pronounced long-term decline. (The percentage distribution of expenditures among major consumption groups shown by BLS survey data for 1950, adjusted for differences in coverage, is quite close to the distribution of Department of Commerce data though the Commerce figures are higher in aggregate.) What is to be done with such differences? Obviously, at the very least a careful examination of the data is required to attempt to determine which set of numbers is likely to be more accurate and appropriate. I might note that stability in relationships which is frequently taken as evidence of reliability of the basic data may simply reflect stability (not necessarily constancy) of various types of bias.

Turning to a more difficult aspect of this problem and abstracting from reliability of data, are there adequate grounds for assuming that cross-section relations between consumption and income derived from data for one or more single years give closer approximations to the "true" income propensities than time-series relations when explicit or implicit allowance is made for the influence of other variables? We plan to explore this problem in connection with the Wharton School study by comparing parameters estimated both from single cross-section surveys and from time-series data with those derived from data on expenditures, income, and other consumer characteristics collected by market research organizations from continuous samples of respondents. Such data will of course also permit a direct check on the influence of income in current and prior periods.

In fitting mathematical relationships to cross-section data, Dr. Gilboy points out that to avoid curvilinear functions it may be decided "to fit linear subfunctions . . . or we may omit the points for the upper income groups, as their consumption usually forms a minor (11 per cent) proportion of the

total." Upper income groups are apparently defined for this purpose as over roughly \$4,000 income prewar and \$6,000 postwar, with the 11 per cent estimate based on a "weighted average for all consumption for urban families in 1935-36." It should be noted in connection with the possibility of omitting points for the upper income groups that in 1950 consumer units with income over \$6,000 apparently accounted for 24 per cent of total consumption of urban families, and that in any case serious problems might be raised in models of income generation by this treatment of the sector of the population accounting for most saving.

Having commented on the cross-section data presented, I might add that I was also rather puzzled by some of the empirical results obtained from time-series data. For example, the marginal propensity to consume products of the textiles, apparel, leather and miscellaneous industries (at producers' values) is twice the marginal propensity to consume products of the motor vehicles and rubber products industries. What is the meaning of these results and how well do they predict developments after 1950 (the last year included in the basic regression)?

A third group of observations relates to some tentative conclusions Dr. Gilboy draws on the influence of variables other than income on consumption. She notes that "so far" the influence of occupation appears to be "not quantitatively significant." This conclusion is not too different from that drawn by others from the 1935-36 survey but is quite different in one respect from findings of postwar surveys, including the Federal Reserve-Michigan data and the BLS data for 1950 now being analyzed in the Wharton School study. While preliminary analysis of the 1950 data does not point to any major differences in the pattern of consumption for the various nonentrepreneurial (and nonfarm) occupational groups, it does suggest appreciably lower expenditures on most of the major items of consumption by entrepreneurs in the middle and upper income groups than by other persons of comparable income. In addition, all of the postwar surveys indicate that entrepreneurs account for a very large proportion of aggregate personal saving.

If further study supports the preliminary indications of these data, it is possible in view of the variability of entrepreneurial income that a high proportion of cyclical fluctuations in the total of individuals' saving relative to income may be explained by movements in entrepreneurial saving. The hypothesis that entrepreneurs play a highly important role in national saving (which of course would be reinforced if corporate saving were added to entrepreneurial noncorporate saving) has implications for economic growth as well as for cyclical stability. However, before this hypothesis is pushed very far, it will be necessary to investigate the role played by business investment in the saving of entrepreneurs and to check on the mutual consistency of high entrepreneurial saving shown by surveys and low entrepreneurial investment in business indicated by aggregate data.

Dr. Gilboy does indicate there may exist a real difference in farm consumption habits as compared with nonfarm, which she does not discuss in her summary remarks. It is interesting, however, that not only do substantial differences seem to exist but that they have not been consistent over time.

Both the 1935-36 and the postwar consumer surveys agree in showing a much lower propensity to consume by farmers than by nonfarmers in the same income classes, and aggregate data give similar results for this period. However, time-series estimates (data for 1897-1949 developed by Raymond Goldsmith) indicate that the average saving-income ratio for farmers was insignificantly different from zero from 1897 to the mid-thirties as compared with a ratio of over 10 per cent for nonfarm households. Apparently, if the available data are to be relied on, it is only since the mid-thirties that the saving-income ratio of farmers has been higher than that of other individuals. This underlines the danger both of relying on one body of data alone and of assuming stability in structural relations over time.

Another interesting occupational difference in consumption patterns suggested by the 1950 BLS data is that manual workers spend somewhat more on food and somewhat less on housing and household operation than the other groups, but the analysis has not progressed far enough to assess the reliability of this result.

A number of potentially important variables whose influence on consumption Dr. Gilboy does not discuss will be analyzed in the Wharton School study. These include (in addition to city classes, income, occupation, and size and type of family which are common to the two studies) age of head, tenure (renters, homeowners, and year of purchase), income change, income expectation, levels of major expenditure items, levels of major assets and liabilities, and many other economic, social, and demographic characteristics.

Thus the preliminary analysis of the aged points to relatively low spending by this group, particularly for clothing and recreation, as compared to other families and individuals with comparable income. Similarly, homeowners seem to consume less than renters throughout most of the income range, reflecting lower expenditures, not only on housing, but also on food and clothing. There are interesting differences in the consumption patterns of homeowners, with relatively heavy expenditures in the year of purchase of a home, particularly on furnishings and equipment, and low expenditures for a number of years thereafter as mortgages are being reduced. These variations in spending patterns may help to explain some part of the long-run trends in the total and structure of consumption.

Finally, I am a little bothered by some of Dr. Gilboy's statements on the role of prices in changes in consumption patterns. For example, I do not understand how Eleanor Snyder's findings from budget studies over the last half century suggest that "in the short run, price changes, unless relatively large, have a minor influence on consumption patterns." While I am not quite sure how to interpret the results referred to, they seem to show price elasticities of one-half for food and housing (about as high as the income elasticities) without any distinction between short-run and long-run elasticities or between small or large price movements. Moreover, they also seem to imply that a considerable number of items within the total of goods and services exclusive of food and housing are sensitive to price as well as income changes.

While I have referred to some work in progress and a few highly preliminary results of the Wharton School Study of Consumer Expenditures, Incomes and

Saving in connection with my discussion of Dr. Gilboy's paper, it may be desirable to give a broad outline of the scope of that study. A fairly detailed statement, including a number of additional results, appears in a paper I presented at the American Statistical Association meeting on December 28, 1955.

The study, which has been under way for about a year, is being carried out in co-operation with the Bureau of Labor Statistics under a grant from the Ford Foundation. It has two major parts: first, a comprehensive set of analytical tabulations of expenditures and related data for 1950 and 1951 to be compiled by the BLS from detailed surveys covering 1,500 items of budget information collected from each of 12,500 families and individuals in all income and occupational classes in ninety-one representative cities; second, a series of research studies of economic and social aspects of consumption and saving patterns, by staff members of the Wharton School and other academic institutions, making use of the new 1950 and 1951 data, as well as of other consumer surveys and time-series material.

This past year has been spent mainly on finalizing plans for the tabulation and publication of the 1950 and 1951 survey data and on preliminary runs of these data. The tabulations will cover approximately 8,000 pages and require eighteen volumes for publication. These volumes will be released in the spring and summer of 1956.

The research studies which have been programed include a methodology and appraisal of consumer expenditure surveys; a detailed description of post-war consumption patterns and a comparison with the prewar period; studies of entrepreneurial and upper income saving and of the role of insurance and investment in housing in total saving; the relation of assets to consumption patterns; tests of various "absolute," "relative," and "permanent" income hypotheses; intensive studies of demand relationships for food, clothing, automobiles, other consumer durables, and housing; consumption patterns of manual and nonmanual workers, of the aged, and of Negroes; several marketing papers, such as an analysis of the influences of suburbanization on consumption patterns, of the relation between retail outlets and price lines and consumer and community characteristics, and of the effects of area characteristics on the market for selected commodity groups; the relation between consumer credit and consumption patterns; home financing; evaluation of medical expenditures; determinants of the labor force propensity of secondary earners; and consumer price indexes for population groups. A couple of the more specialized studies may not be carried beyond the exploratory stage depending on the adequacy of data and resources.

It might be noted that the new BLS data show the same striking stability as earlier surveys in the disposition of income, and even more so of consumption expenditures, among the major groups of goods and services for different income classes (and most other economic, social, and demographic groups). Perhaps the two most significant variations generally indicated in the consumption behavior of different income classes are the considerably higher propensity to consume of the lower income brackets, and the somewhat higher proportion of expenditures of this group going into food and housing.

It is hoped that the analysis of these data, in conjunction with earlier surveys and time series, will cast further light on some of the more interesting secular trends in consumption behavior. Thus the rise in the aggregate ratio of food expenditures to income from the immediate prewar to the postwar period, after declining moderately for several decades, may reflect a shift in tastes, perhaps more plausibly a redistribution of income in favor of those classes which have a higher than average propensity to consume food, a greater relative importance of food consumption in forms embodying a high proportion of services and the effect of an increase in the relative prices of food as a result of changes in supply conditions. In other countries, there does not appear to have been this rise in the relative importance of food after World War II. (See Irving B. Kravis, "International and Intertemporal Comparison of the Structure of Consumption," *Conference on Consumption and Economic Development*, 1955.) Preliminary analysis of the new BLS data suggests that part of this rise in the U.S. may be due to redistribution of income in favor of low-income groups and to shifts in the distribution of population to large cities where a larger proportion of a given income is spent on food.

Similarly, the declining historical trend in the proportion of income going into clothing indicated by aggregate or time-series data for the United States may reflect the decline in family size, increase in average age, and changes in occupational structure. It is interesting that other countries did not seem to experience such a relative decline in clothing expenditures, but customarily show an increase instead.

In addition to an analysis of trends in the different groups of expenditure, the Wharton School study will examine the secular increase in the ratio of total consumption to income, for given real income classes. The ratio has shown discrete jumps, and it is planned to attempt to relate these movements to the introduction of major new items of expenditure, as well as to other developments.

Professor Duesenberry's paper seems to arrive at two major conclusions: first, that innovation has relatively little effect on aggregate consumer expenditures via its effect on individuals' propensity to consume; and, second, that the direct effects of innovation on investment, though positive, are likely to be small. I am inclined to question both conclusions.

Professor Duesenberry points out that it may be possible to explain much if not all of the long-term relative constancy in the saving-income ratio shown by time-series data, and the positive relationship between this ratio and income shown by budget studies, by factors other than new products. Apart from various types of income hypotheses, he mentions two other factors; viz., the increased degree of urbanization and increased liquidity and availability of credit. Why these factors are regarded as more plausible influences on the saving-income relation than new products does not seem to be explained satisfactorily. Increased urbanization has long been considered a possible influence in depressing the aggregate saving-income relation, largely because since the mid-thirties data have been available indicating that farmers have a higher saving propensity than nonfarmers. However, as I indicated in my earlier

comments, data which became available in the past year suggest that the reverse was true prior to the mid-thirties. As a consequence, increased urbanization can hardly be used as an explanation of an aggregate long-term tendency towards lower saving for given income. It could instead be considered to represent an influence toward higher saving up to the mid-thirties. In any case, to the extent this factor was relied on to explain why the aggregate saving-income ratio did not increase with rising income, there is still room for new products as an explanatory variable.

While I have considerable attachment to the notion that increased liquidity may tend to lower saving for given income, it seems to me that the hypothesis that new products are in some degree competitive with saving and that this tends to lower saving is equally plausible. Moreover, the empirical evidence behind the liquidity argument is in large part the fact that it helps to reconcile the time-series and cross-section findings. The same type of empirical evidence can be used to support the new products assumption.

The point I am making is not that there is convincing reason for believing that new products have a major effect on the propensity to consume but that there is little reason for concluding that they do not. My own opinion is that the effect is significant. More careful examination of existing data will help in reaching better judgments, but probably more useful would be a set of detailed annual surveys of consumer expenditures for a number of consecutive years, preferably for a constant sample of families.

Another related point which Professor Duesenberry does not consider is the effect of new products on the supply of labor and hence on income and consumption without any necessary change in the propensity to consume.

My final set of questions relates to the analysis of the direct effects of innovation on investment. Is Professor Duesenberry's conclusion that "at a first approximation . . . one can argue that redistribution of demand . . . due to innovation . . . has no net effect on the ratio of investment" supposed to be a refutation either of the notion cited at the beginning of the section "that innovation has a positive effect on aggregate investment," or of those theories mentioned at the start of his paper in which "variations in the rate at which innovations occur or . . . are exploited provide the basic explanation for fluctuations in aggregate income"? Innovation either in the form of new producer or consumer goods might be a significant part of the reason for a rise in the marginal efficiency of capital after the trough of the cycle and might have a secular as well as cyclical positive effect on investment, income, and the ratio of investment to income. Innovation in the form of new producer goods could obviously raise substantially the secular level of income without any change or even a reduction in the rate of investment.

I am a little confused about some of the financial discussion leading to the conclusion that innovation does not significantly affect the excess of real investment over business saving, which presumably is intended to subsume a series of propositions about the relations of business investment to business saving, of business saving to business income, and of the latter to the national income. While I do not believe that the financial effects of innovation on investment are of primary importance, it should be pointed out that there

is some evidence in recent years as well as in earlier periods that a rapid rate of innovation may be associated with a psychological climate in which business in the aggregate is more willing and able to obtain external financing. The magic of atomics, electronics, wonder drugs, and the like may affect greatly not only the marginal efficiency of capital but also the availability of funds, particularly in equity form, and not merely for new firms or new products. Under these circumstances, there is also reason to believe that it may be a lot easier to keep dividends down for corporations in general than otherwise would be possible.

HAROLD W. GUTHRIE: Research at Yale University on problems involving consumer behavior has been stimulated recently by the generous assistance of three organizations. All of the seven projects which I shall report, except one, are supported in part by the Yale Workshop in Quantitative Economic Research under a grant from the Ford Foundation. The data used in five of the seven projects are those collected in the annual Surveys of Consumer Finances. The Federal Reserve Board and the Survey Research Center, University of Michigan, contribute valuable assistance by making these data available to us.

Although none of our seven projects was conceived as a direct contribution to the theory of economic growth, many of them have interesting implications which may be useful in constructing such a theory. For example, the work in process by Richard Rosett may give us new knowledge about one component of the labor force. Mr. Rosett is attempting to discover some determinants of the extent to which wives contribute to the income of their spending units. Data for the year 1953 will be used to develop hypotheses relating income earned by a wife to several variables such as number of years married, other income in the spending unit, age of youngest child, asset and debt position, current saving rate, and purchases of durable goods. These hypotheses will then be tested on the data for 1954.

Robert Summers has used the income data of the Surveys of Consumer Finances to derive size distributions of average annual real income over the life span of spending units. Since he was primarily interested in the development of size distributions within a given system, his model assumed a stationary economy with changes in the incomes of individual spending units similar to the changes observed in 1947-48 and 1951-52. He found a marked reduction in the inequality of incomes in the forty-year distribution relative to the single-year distribution. Similarly, the size distribution of income for the forty-year period for all spending units had a lower standard deviation than the size distribution of incomes for a single year within any given age group.

James Tobin has been analyzing durable goods expenditures, liquid saving, and change in consumer debt—three highly volatile components of the consumer's budget—as dependent variables. He is attempting to find the relationship of these variables to the economic and demographic circumstances of the household and to its plans, expectations, and attitudes, and also to analyze the interrelationships of the three dependent variables among themselves.

These interests have led him to a related investigation into statistical tech-

niques appropriate for economic survey data. Frequently the dependent variable is measured as a dichotomy rather than as a large number of possible values along a natural scale. For example, there is always a substantial portion of the consumer population who do not buy durable goods in a given year, and buyers can be formally distinguished from nonbuyers by letting the purchase of such goods take the value one, while failure to purchase takes the value zero. Mr. Tobin has investigated the applicability of probit analysis and other techniques used in biological assay to economic survey data. These techniques provide estimates to answer questions of the following nature: At what level of income will the probability be .5 that a consumer will make an expenditure on durable goods? The analysis can be multivariate and the probability of purchase can be set at any desired level. By an extension of this approach to allow for variation in the nonzero values of the dependent variable—e.g., to use information on the amounts of durable goods purchases—it is possible, not only to estimate the probabilities that the dependent variable will be zero, but also the probabilities for all other values.

My own interest in the explanation of purchases of durable goods has been directed toward the influence of liquid asset holdings and changes in such holdings on expenditures. Investigation to date has indicated that the existence and the degree of such influence varies over time and varies between consumers. The motivations for holding liquid assets appear to be numerous and contradictory in their effect on consumers' behavior. It seems fruitful, therefore, to investigate the motivations for holding liquid assets among various kinds of consumers. I am attempting to assess the relative strength of the security or "rainy day" type of motivation prevailing among different kinds of consumers in the early postwar years. It is anticipated that this information will contribute to a better understanding of the influence of liquid asset holdings on purchases of durable goods.

Ralph Bristol is undertaking a study of the income elasticity of qualities and quantities of selected goods. Quality is measured by the prices paid for similar goods. Men's and women's clothing and household furnishings and equipment are the goods to be studied. Mr. Bristol is measuring elasticities from budget study data for 1918-19, 1935-36, and 1941-42. Since real income increased during the periods included by these years, he will be able to test the hypothesis that as real income increases the income elasticity of the quality of goods purchased rises more than the income elasticity of the quantity of goods purchased.

A workshop seminar in quantitative economic research is now in its second year of operation under the direction of James Tobin, assisted by the writer. The seminar undertakes some project in the analysis of household behavior each year. Among its principles are: (1) that the analysis of consumer behavior can proceed more fruitfully by using data representing individual households than by using aggregated data; (2) that students learn to design and execute quantitative economic research by experience rather than by exhortation.

The project undertaken in the workshop seminar during its first year was directed toward measuring interdependence among consumers with respect

to consumption decisions and testing hypotheses about it. The phenomenon of interdependence has frequently been noticed—by Mr. Duesenberry, among others—but there is a dearth of data which offer a basis for measuring it. We attempted to test several hypotheses concerning interdependence by obtaining and analyzing 379 interviews from Yale undergraduates. Some of our questions were designed to measure the respondent's behavior and preferences with respect to sport coats and cars. Other questions ascertained his group affiliations and the characteristics of the membership and reference groups. Although the analysis has not been completed, it has become quite apparent that careful tests of even simple propositions require a much larger cross-section sample than the one we obtained, or, alternatively, a sample which specifically controls some of the variables which enter the tests. Our hypotheses stated that students who had similar income levels but who were members of groups which had markedly different income levels, would tend to have different patterns of consumption. The fragmentation required to define meaningful groups put a considerable strain on our small cross-section sample.

During the current year the interest of the workshop has turned to the effect of long-range income expectations on current levels of saving. Data from the Surveys of Consumer Finances, which are to be used in testing hypotheses, do not include direct observations of long-range income expectations. A convenient substitute measure can be derived, however, from income-age profiles constructed for groups defined by occupation, education, race, region, and size of community. The tests will also account for differences in saving levels associated with differences in income, age, marital status, and family size.

Now I would like to turn to some methodological issues suggested by the two principal papers in the session. Evidently we can all agree that it is important for us to know what the dynamics of consumer behavior are and that we are impatient with our progress toward attaining this understanding. Differences of opinion arise among us, however, on points of emphasis in technique.

Our ultimate goal, to be sure, is the building of an integrated model which will show the interrelationships between the consumer sector and the other sectors of the economy. The input-output device offers a considerable advantage in that it allows the analysis of consumption within an integrated model. Furthermore, this analysis clearly gains significance when cross-section data are used, particularly when propensities to consume are measured for subgroups defined by such variables as city size and family size. Continued efforts along these lines can lead to the development of structural relationships which will increase our understanding of consumer behavior.

The building of such structural relationships can proceed outside an integrated model, however. It is possible, moreover, that our analysis can be more acute as a result of our focusing attention solely on the partial relationships. I suggest here that the development of structural relationships for the consumer sector must be based on a meaningful rationale of consumer behavior. This requires the formulation and testing of hypotheses which express principles of motivation among consumers.

To illustrate this point of view, let me state our problem again. Economic

growth which is induced by activity in the consumer sector takes place as a result of choices made by the consumer between actions which have conflicting kinds of outcomes for him. On the input side, for example, he chooses between the fruits of his labor and leisure, between the security of liquidity and the risk of loss along with the potentially high return of investment. On the expenditure side he chooses between saving and consuming, between more goods of a low quality and less goods of a high quality, between old and new products or services, etc. Moreover, the choices that consumers make are not simply determined. The choices which can be observed as consumer behavior are often the results of the interactions of a large number of variables and they cannot be explained by any single simple motivational force. Individual consumers react differently to the same amounts of income or wealth because they are different in other respects and because different underlying forces motivate their choices. Propensities to consume can contribute significantly to our understanding of consumer behavior only if the estimates of the propensities are based upon variables which distinguish between the different circumstances and different motivational forces to which consumers are subject.

The need for validating principles of consumer choice is illustrated by Mr. Duesenberry's discussion of the effect of innovations on the propensity to consume. The fact that consumer preferences do not remain fixed was cited to controvert the notion that the appeal of new products prevents increases in the saving ratio. Mr. Duesenberry then explored the possibility that the effect of innovations is related to the superficial inconsistency of cross-section data and aggregate data on saving ratios. Other explanations seemed to reconcile the data, however, leaving little room for innovations to suppress the saving ratio over time.

My point in reviewing the discussion here is not to take issue with the conclusion reached. One important factor in the discussion, it seems to me, is that consumer preferences not only change, but we know little about their structure when they are fixed. A better understanding of fixed preferences would contribute significantly to tests of hypotheses about the effect of innovations on economic growth.

ECONOMIC GROWTH V. GOVERNMENT EXPENDITURES AND ECONOMIC GROWTH

GOVERNMENT SPENDING AND LONG-RUN ECONOMIC GROWTH

By C. LOWELL HARRISS
Columbia University

Two different themes are developed in this paper. One—to me the more interesting—is the way government spending can contribute to growth. The other is the use of government, as contrasted with private, spending to buy the goods and services and make the transfers the public wants.

Government expenditure has played a major part in this country's economic development. Its role in the drama of future growth may be even more prominent. Or it may not. The "creeping conservatism" that seems not unlikely to characterize the near future may lead to a slighting of government expenditure, including kinds that aid growth. (If so, the reason will be at least partly ignorance, which those of us who try to explore and teach economics have failed to dispel.) Americans, of course, have always taken a part of rising income in the form of government services. Some things we want most, in fact, we seek from government. This is true, I believe, even though apparent demands for government services probably appear exaggerated because some of the votes that express them are influenced by lack of direct connection between expected benefit and expected cost. As the economy grows, we shall achieve important objectives—the enhancement of some forms of real income—only if public spending increases. There is yet another consideration: the increasing use of government to transfer (rather than to create) income adds problems which complicate the analysis of both our themes.

Today, economists cannot give precise guides because we still know too little about how government spending can aid or impede long-run economic development. We face, for example, those troublesome and unresolved questions of the appropriate, most broadly constructive, scope of government spending, especially as contrasted with private spending (household and business).

Freedom and Coercion. Government coerces. It can force some of us—a tiny or a large minority or, in view of the distribution of political

power in this country, perhaps a sizable majority—to do what we would not do freely. It seems to me that the presumption should be against unwilling coercion. An obvious exception, of course, is the compulsion we know as use of the police power—the kind that when wisely used truly enlarges freedom. Rather less obvious is the compulsion that forces one to “buy,” with taxes, goods and services that might be provided in the market but which, if they were, one might buy in smaller or larger quantity. But, given our wealth of voluntary organizations, is there not an overwhelming case for reliance upon the free market instead of government (except where unanimity prevails)? If people want something badly enough to vote taxes to get it, would they not buy it in the free market?

The answer is more familiar than precise: We have interests as a community which cannot be served adequately by our individual actions. Some actions create values which cannot become the property of the person who makes the effort (incurs the expense) needed to produce them; his private spending in this way will fall short of what is in the public interest. The public acting as a whole can accomplish more than they can as individuals. But what, exactly, are these social interests or “neighborhood effects” of certain actions? Who can decide? How? And how well? Such inevitably frustrating questions arouse enough emotional reaction to impede fruitful study. The difficulties, however, involve more than a conflict of reason against emotion.

Special Difficulties of Studying the Problem. One difficulty is measuring the results of most types of government spending—especially in the crucial area of social interest; nor can we measure all the results of private spending, some of which have effects on the community like those of government spending. (Would New Yorkers benefit from public expenditures to eliminate the tons of filth pouring from the city subways’ electric generating plants as Consolidated Edison, i.e., the buyer of current, is spending to reduce the smoke poured “privately” on the city?) Another difficulty is the impossibility of weighing the adverse effects of taxes needed to get the funds to pay for more government spending. A third involves the definition of government spending. This is a slippery concept.¹ It gets harder to grasp as tax privileges or outright exemptions, guarantees, business-type activities, trust accounts, and other complicating factors grow in size and variety. Finally, one must guard against romantically optimistic, or unreasonably pessimistic, conclusions about the effectiveness of acting through government.

Inadequacy of Knowledge of Causes of Economic Growth. Perhaps

¹ C. Lowell Harriss, “Government Expenditure: Significant Issues of Definition,” *Journal of Finance*, December, 1954, pp. 351-364. Only one who has tried to work closely with data is likely to appreciate the significance of this problem.

a still greater obstacle to the analysis in this paper is lack of clear agreement on the causes of economic development (or how to measure some of its constituents). Economists are not yet certain about the relative importance of elements which clearly, or perhaps not so clearly, influence (or constitute!) economic growth.² Without such knowledge the area of disturbing doubt is uncomfortably large. Though we can measure the chief types of government spending and compare them with the growth of GNP (plus leisure and allowing for population growth), it seems to me utterly impossible to determine whether past decisions brought the public reasonably near, or very far from, the optimum. Nor can I suggest how to take account of growth in such transfers as social insurance or welfare payments. Do they either aid or constitute growth?

My own emphasis will not suit everyone. The papers of this meeting will certainly lead me to improve my judgments. In a sense, therefore, what I say is a preliminary application of one part of economic analysis to another, both of which are still developing.

Much depends upon institutional conditions, and something upon the accidents of leadership. What would have been most appropriate in this country half a century ago might be less well suited today, and vice versa. The significance of personality may be a matter of debate; yet human actions do make a difference, and men and women with forward-looking drive may act in government or privately, and their achievement may be more the result of their activity than of government or business. Moreover, our peculiar needs and opportunities over the next generation may be significantly different from those of other countries. My own experience abroad has convinced me that differences at the many margins of economic life are too great to justify my attempting to apply what I know about this country to other economies. My comments, therefore, will focus on U.S. conditions in the future as I see them. I assume no significant tendency toward inflation or stagnation.

Problem of Raising Revenue. As already noted, in talking about the good things that can be obtained from government spending—whether as consumption, aids to production, or transfers—we may ignore the bad things that come from withdrawing the resources from other uses. Pressure groups often err on this score, usually making the implicit assumption that the cost will not bring equal or larger loss. It is easy to point to apparently dispensable personal spending—cosmetics, liquor, tobacco—and show how a modest reduction could finance some constructive government spending. Yet it does not follow that higher pub-

² There is, of course, a growing literature. My own views are summarized in my book *The American Economy* (Richard D. Irwin, Inc., 1953), Chap. 46; this in turn rests heavily on Moses Abramovitz, "Economics of Growth," *A Survey of Contemporary Economics* (Richard D. Irwin, Inc., 1952), pp. 132-178.

lic spending would in fact be paid for by the implied method. Economists, of course, recognize the essential differences between possibilities when resources are utilized fully and when they would otherwise be idle. I explicitly ignore here the opportunities of spending to use resources that would be wasted in idleness, but professional economists will have no difficulty fitting my analysis into situations in which wasteful idleness is of more than temporary and trifling importance. Getting revenue involves its own problems bearing on economic growth. They are so complicated that I could not possibly begin to include them here except for two widely different—but inadequately appreciated—points.

The first is that the future should see us better able to pay more in taxes—real incomes per capita will be higher. Yet the dangers of economic distortions resulting from high tax rates will likely increase unless emphasis in raising more revenue (than the present system would yield) is placed where tax rates are now relatively low or the tax base cut by loopholes. This country, I believe, has not yet felt the full long-run impact of present top rates. Unfortunately for analysis, there is no likely prospect that the effects can ever be identified completely. Accurate measurement is even more difficult. (I suspect that some of our housing troubles—especially the tragic condition of some areas in cities—are due in part to the distorting effect of real estate taxes.) Thinking about larger government spending to encourage economic growth, or to enjoy its fruits, cannot be most useful unless it deals realistically with getting revenues from the mass of the public—not the lowest fourth but the middle three-fifths or so. The powerful, creative tool of government spending will not work its potential wonders unless it is wielded by a large public willing to shoulder the burden. Fortunately, the masses will be in a position to pay for more government services.

Taxes, however, are not the only source of revenue. My second point, therefore, is to recall a familiar, yet often overlooked, fact: prices and charges offer nontax methods of getting funds to finance government spending. Governments can even compel us to do things without paying us from funds collected in taxes: conscription for military service, building to reduce fire danger, auto inspection. Or if taxes are used, they may be so closely tied to benefits that they are essentially prices. Consequently, in deciding whether to seek more benefits from government spending, we are not strictly limited to what we can pay for out of taxes. Moreover, the charging of prices may in itself lead to more efficient use of resources, but it may not.

Strategic Elements. The speed and nature of U.S. economic growth will depend, of course, upon a host of things. Some are more important, more nearly strategic, than others. This notion of differing importance, I concede, is a bit unsatisfactory in a world of interdependence. A tiny

element, like a catalyst, can exert a powerful influence and yet pass largely unnoticed. When things are interrelated, measuring their relative significance is hazardous, especially the "little more" or "little less" of one or another. Yet the idea of strategic factors seems useful. So I shall deal with government spending as it may affect certain strategic aspects of U.S. economic growth.

To give better perspective, I shall indicate something of the growth of spending over the last half century. The usefulness of such measurements as a guide to the future seems to me doubtful. My figures are from various publications of the federal Bureau of the Census.

For various reasons I shall omit entirely any consideration of some highly important types of spending: national defense, foreign aid, agricultural programs, and interest on public debt.

Policing; Justice; Internal Order. Policing and the functions associated with it are certainly among the most important we assign predominantly to government. A slight tendency to disparage the significance of such activity seems unfortunate and not really intended by those who gently ridicule the older notion that the job of government almost ends when law and order and protection from outside enemies are secured. Yet a good system of police, re-enforced by an effective judicial system, is a means of getting the kind of civilization in which we want to live and also of aiding efficient production. I doubt that many communities are satisfied with what is available today. Whether things were better in the past, I have no idea. Over the last half century, we have not increased spending on police except in proportion to the rise in income (fire protection less than police). Although data on courts are incomplete, "general control" outlays have grown less than income.

Personal Security. The rising income that economic growth produces will undoubtedly be directed, in part, toward satisfying one of man's greatest desires: personal financial security. We shall use both the private economy and government. Perhaps there is still doubt in some minds whether the transfers made by government in welfare and social insurance programs do more to aid the creation of real income in the broadest sense than the taxes necessary to pay for them obstruct it or do more to advance the public interest than other use of some or all of the money, privately or by government. But there is no doubt that Americans will rely heavily on government—as we have done over the last five decades. State-local spending on welfare (including funds from the federal government) increased more than four times as much as income—from 47 cents per capita in 1902 to \$19 in 1954. In addition, OASI and unemployment benefits (why do tabulations of government spending so often ignore these large outlays completely?) have grown from nothing as late as 1936 to about \$30 per capita today. Judging

from experience, such spending will continue to grow—and grow more than required by laws now on the books.

Health. Physical and mental health are not only of the utmost importance in our preferences of what we really want, but they are also major determinants of human accomplishment. Concern for the healing arts seems to be growing, and I have no doubt that as incomes rise the American public will devote ever more resources to improving health. Government will certainly be used to help achieve the end. And the fields of health do offer opportunities for strategic use of government spending. Relatively small outlays on research, sanitation, prevention, and therapy in the early stages of illness can bring great returns—at least they have in the past. Success in preventing tuberculosis has, among other things, reduced financial pressure on public treasuries. Today mental health and problems of aging present areas in which research may cut what now look like causes of heavy future drains on public funds.

The individual cannot be counted upon to spend as much on health as is in his own or the general public interest. Private firms will not necessarily devote the quantity of effort, or the kind, that will best serve the public—in research, sanitation, prevention, or cure. Although dispute may rage about forms and amounts, the case for increased government spending to raise health levels seems to me overwhelming—to improve economic productivity as well as for humanitarian reasons. Better health contributes materially to achievement on the job, especially over the lifetime.

One challenge today is to find ways to extend the years of vigor so that an increasing group of older people can be productive. A type of government spending that might bring very high returns per dollar spent would be to enforce adequately advanced laws on accident prevention, in the factory or on the highway. A different approach involves action that private individuals and groups can be compelled to perform at their own expense (vaccination and pasteurization, for example). With rising income and more convenient opportunities for insurance, private finance of medical care becomes easier and the need for government less.

Economists—at least this one—are not qualified to judge technical possibilities. (Unfortunately, the opposition of the American Medical Association to the “socialization” of the nonprofitable aspects of medical practice seems likely to confuse discussions of the role of government in spending to improve health.) Yet they can emphasize that human capacity is our major productive resource, that losses from less than prime states of health have always been and still are tremendous, and that public spending through government can reduce these wastes.

State-local spending on health and hospitals rose from 75 cents a year per capita in 1902 to \$15.00 in 1954, an increase more than twice as great as that of per capita income. Most goes for hospitals and relatively little (\$2.75) for public health in the more common meaning. Outlays for sanitation increased in about the same proportions as income. Federal spending on health has been rising. Existing commitments to veterans will bring more increases. Recognition of the value of better health for national defense will probably lead to still more. On the other hand, the progress of science may reduce the pressure by cutting need.

Education. Education stands out as a strategic factor for aiding economic accomplishment and also for enlarging the potentials for richer human experience—perhaps the main objective of economic growth. Future productivity will depend upon education of the broadest, and broadening, type as well as vocational training for specific types of work—surgery or stenography. Spending on education multiplies values many fold in developing human capacity.

This country has chosen to get its elementary and secondary schooling largely through government spending. For higher education it has relied far more on nongovernmental agencies, but today two-thirds of all college students are enrolled in governmentally supported institutions. From 1902 to 1954, the percentage of per capita annual income spent on public education more than doubled; the dollar total rose from \$3.00 to \$65.00 per capita. The increase in government outlays on higher education was perhaps more striking: from 16 cents per capita to \$8.78. I shall certainly not venture to estimate cause and effect, but the expansion of education has aided the growth of income, and vice versa.

We are still, I believe, very far from the end of the opportunities of spending more on education to get magnified returns in higher productivity and better living. Beyond the staggering problem of numbers lies the challenges of quality. Here the opportunities for increased effort to bring large rewards are tremendous; the penalties for parsimony are needless waste. Growing per capita income will reduce any excuse for imposing this waste on ourselves. Even with great prosperity, many individuals on their own will not—often they cannot—devote as much to education as is in their own and the public interest.

Some training can or must be done by business—learning on the job. It is perhaps better not attempted as a public responsibility. There are important types of training needed by an increasingly technical civilization that public schools cannot hope to accomplish satisfactorily. Yet most of the task of financing education is better done publicly. Only a few firms, for example, can hope to develop educational systems

to match those of good public schools—if only because employees do not stay put. There is no lack of publicity about the inadequacies of our public schools. Perhaps the emphasis is unfortunate, for we have accomplished a lot; since World War II annual per capita spending on public education has increased over 150 per cent. (Incidentally, per capita spending on liquor—a common bench mark—has declined.) Nevertheless, even more might have been accomplished if we had been able to portray more vividly, and demonstrate more specifically, how education aids economic growth—if we could have shown more clearly that schooling pays handsomely in dollars and cents. (I assume that Americans will generally work for a paying proposition. Not much more work is needed to equal a large percentage of an element as small in the national accounts as the outlay on education. One hour a week more work would produce half as much income as is now devoted to public schools. One hour every three months for a year would create much more than the recent Ford grants to higher education.) And we might have done better had we been less tied to taxes and borrowing. Perhaps more could have been accomplished if we had been freer to charge prices to get funds to pay for schools; but in making such a suggestion, I should have my retreat well planned. (The charging of price would have an adverse effect on quantity demanded, even with compulsory attendance and public grants or exceptions for those with low incomes. There are other things to be said against it—as there are against taxes. I suspect that the case for some charge has more merit than most of us are inclined to recognize.) Another possibility is to aid those who wish to purchase more, or superior quality, education privately by grants of at least part of what government would spend if the student were in public school. The problem is complicated by the fact that many private schools are religious. Yet more effective use of governmental funds for education might result if they could be used to supplement or induce more private spending. New York State scholarships for use at private colleges provide one of the all too few examples today.

The problem of colleges seems to me farther from solution than that of schools, largely because rapid expansion of staff of good quality is more difficult. Yet it is largely at the college level that education can make perhaps its biggest contribution to the enrichment of living: the enlargement of truly real income. More practically, we also have the increasing need for more highly developed skills. They are essential both to expand the frontiers of knowledge and to utilize more fully what is already known. Both requirements call for even more education at college and advanced levels where governments carry much of the responsibility—at a total cost of 1.4 per cent of government spending. The increase since the war has been over 300 per cent. But the

great challenge is still ahead, and it requires far more resources, and quickly, than governments are yet inclined to provide. Most effective solution also requires rethinking of the relation between essentially tuition-free government institutions and private colleges, which must now charge not inconsiderable amounts. What is at stake is a magnificent opportunity for highly creative use of productive capacity.

At both the school and college level, however, can we not hope for growing productivity in teaching to permit output to rise and thus keep costs down? To some extent, yes. Generally, however, teaching will remain a largely handicraft industry—teaching of optimum quality. Good results will probably become more costly in relation to (competing) goods and services produced where increasing mechanization aids productivity—a rather depressing outlook, for adjustment may tend to be in quality deterioration. My prediction in this area, however, is subject to serious reservations.

One prediction, however, is unqualified: the next two decades will see less government spending on education than would pay in speeding economic growth. Still, if anything like recent rates of increase in public spending on education continue—\$6.00 a year per capita (not per pupil), of which 50 cents is for higher education—the 1970 level of accomplishment ought to be substantial.

Expansion of Knowledge. The results of inquiry, research, investigation, and the expansion of knowledge will determine to considerable extent the speed of economic growth. Perhaps one of the soundest reasons for great optimism is that rising income will enable us to devote ever more resources in this most fruitful fashion. Yet here, clearly, is an area in which the individual cannot effectively use resources in what will be to his own interest. He must rely upon association with others, using governments as well as businesses and private institutions. What is best done by government? I hesitate to offer suggestions and do not venture to judge the past. Figures are not very good. We do know that half a century ago governments spent a little on research and that today the amounts are huge. We also know that serious effort is being made at the national level to plan effectively.

The achievement will depend, among other things, upon the total quantity and quality of human talent and other resources available, the conditions under which inquiry seeks to progress, and the allocation of limited resources among rival projects. The public, using government as its agency for action, may spend to enlarge the total research resources as it has in recent years. Moreover, there is a constructive role for government in allocation. Government spending can fill important gaps left by the programs of others. (Conceivably, it might even divert effort from lines that businesses would be willing to pursue in the hope

of profit to others of greater potential worth to the public as a whole.) If government could come even moderately close to the achievement of such an objective, the fruits of the necessary spending would perhaps be fabulous. Broadly, such a goal may not be too ambitious as an objective. Yet the practical obstacles are mammoth and the variety of problems endless. The issues involve the unknown. The essentials of secrecy in military research hinder the best of integration. Guides to efficiency are few. What are the gaps? What is poor balance?

The mechanism of government is not well adapted for at least some of the types of action needed; but businesses, universities, and other private institutions also run into difficulties. Still, opportunities are perhaps more important than difficulties. And without doubt much can be accomplished within the limits of what is feasible with government outlays that are perhaps small in relation to what is now being spent on research over the whole economy.

Here, however, arises a problem about which we hear occasionally: government may in fact allocate poorly; its spending may do harm by diverting skills to forms of research that are less creative than others that might have been pursued. Concentration on minor national defense or atomic energy projects may be excessive. More government spending for research, therefore, will not inevitably yield positive results.

I doubt that man will ever find a neat solution to the problem, but economists will recognize one point: The forces of competition in free and impersonal markets cannot be counted on to serve adequately (in amount or direction); for example, future productivity (or beauty or health) cannot compete now for research funds to make the productivity possible. Human judgment is perhaps more decisive here than in any other phase of economic life. The quality of human judgment at the levels where decisions about research are made—in business or government—makes a tremendous difference. So our success in getting high returns for government research spending will depend partly upon the caliber of the persons who decide—in legislatures, the executive branch, and the military.

Recreation. One element of a rising level of living is certainly more and better recreation (including what are commonly called "cultural" activities). Here the present role of government is clearly contradictory. Admissions to theaters, ball games and swimming pools, club dues, sporting goods, victrola records, TV sets, etc., are taxed (often, but not always). Yet governments spend to provide recreation, and they try to aid some private types by tax exemption. Such inconsistencies likely reduce one's optimism about the effectiveness, or at least the efficiency, of government as an agency for accomplishing ends. (President Eisenhower's statement urging more emphasis on physical development of

young people was not accompanied by recommendation that the tax on sporting goods be removed.) Some of the anomaly results from lack of co-ordination among levels of government, some from antiquated (or at least crude) notions of luxury, some from willingness to adjust before the breaking point in extreme cases (exemption of tickets to symphony concerts, for example, from the federal tax on admissions), some from the pressure on legislatures to find revenue from any source, and much, I suppose, from ignorance.

It would require at least one entire paper to develop my views on this range of subjects and especially upon the relative roles of government and business. The tremendous variety of things properly included under recreation and the issues revolving around taste—and its development—give rise to so many aspects for consideration that I venture only one generalization: Government has a constructive part to play even in a world in which most of the public can afford to pay for recreation and in which profit-seeking businesses have a strong incentive to satisfy the demand, whether charging directly or indirectly (in prices that cover advertising costs).

The census series on local parks and recreation shows per capita growth from 37 cents to \$2.61 from 1902 to 1954. This is less than the approximate ninefold increase in income. In terms of purchasing power, the 1927 per capita figure was higher. The percentage of total state-local expenditure was more than twice as great fifty years ago. Yet the figures are far from satisfactory. I suspect, for example, that parts of spending on highways, education, libraries, natural resources, and probably other functions should be included. Omission of the opportunity cost of park facilities makes the money costs shown much less than the broad economic cost. Nor does tax exemption appear as a cost.

Capital Accumulation, Investment, and Conservation. The importance of capital accumulation in economic growth is well known in principle—but very difficult to quantify. The rise in the level of living will depend upon—and be reflected in—the acquisition of more and better capital goods, both privately and publicly owned—factories and highways, apartments and post offices, stores and water supply systems, theaters and parks. Saving is required. Governments, i.e., the public acting through the political mechanism, must do some saving. Yet, at least initially, they can rely upon private saving; for example, they may borrow to pay for the new school. They do. By 1956, state-local debt will be three times its size at the end of World War II. Getting funds for capital projects by borrowing, however, will not in fact do all that is desirable. Our willingness to pay taxes and our choices among competing demands for these tax funds will also determine how rapidly our stock of governmentally owned capital equipment will grow.

The relative importance of privately- and publicly-owned capital

will vary, depending upon many elements of the economy and the society as a whole. We rely heavily on government, though less so, perhaps, than other countries. In the last few years what may be a swing of ideology away from government participation in economic life, plus the aggressiveness of business in bidding for investment goods, may give cause for concern over the adequacy of government spending on capital equipment. Nevertheless, outlays for schools, highways, national defense facilities, and other government capital items are not small.

Per capita state-local spending on capital construction in 1954 was twenty times the 1902 figure and three times that of 1927. The total outlay in 1954 was almost twice the net increase in state-local debt (9.1 billion dollars compared with 4.9 billion long-term debt).

Perhaps in some areas government investment is lagging much behind long-run needs for balanced economic growth; and what is being done may not be conducted in the most productive ways reasonably possible. For example, too much of total highway spending may go to rural roads and too little to urban facilities. The absence in government of good capital accounting and budgeting, plus the intangible nature of some of the benefits from government capital assets, also creates reason to fear that we shall make less than the best possible use of government capital and investment opportunities. Total amounts may balance poorly with those of the rest of the economy, and allocation among projects may suffer. Recent studies of the costs of irrigation projects, for example, leave no doubt in my mind that some very poor decisions have been made. The criticism implied may be too severe. At the minimum, however, it ought to focus closer attention not only to the specific problems but also to the functioning of the federal government in natural resource development.

One element of a higher level of national living would be better housing, and not only in urban slums. Half a century ago, government provision of housing was, as far as I know, confined to institutional facilities. The last two decades have seen a change, and the future will likely see even more. Incidentally, I have the impression that before the public gets more deeply committed to spend (or grant tax exemption) to improve housing, more penetrating research on this complex problem might show ways of making government funds more effective.

The provision of equity capital presents one of the more significant aspects of capital accumulation as related to economic growth. The importance and the problems of financing risk—venture investment—are generally familiar to economists; sometimes, however, we do forget that even debt-financed investment depends upon equity finance. Unquestionably, equity funds can be “high powered” in two ways: by enlisting the use of debt funds, they can have a multiplied effect and they

operate at points of growth. Private markets do not assure either the optimum amount of equity funds (a concept I find very difficult to sharpen usefully) or the direction of what is available to spots where the usefulness is greatest.

Conceivably, those who make decisions on government spending might provide useful supplements to private markets. Equity funds made available at a relatively few strategic points might greatly stimulate growth. The results of attempts along these lines are subject to dispute. Land grants to some railroads were perhaps successful, but many failures will also be found in American history. There are such projects as TVA where, in a sense, government assumed risk-bearing and entrepreneurial functions which brought positive results in the form of growth in the private sector that would otherwise have been slower and different. Other opportunities of somewhat the same sort, even if on a smaller scale, doubtless exist. Moreover, the federal government has, in a sense, provided venture funds in the form of loans—some by the RFC, for example. I am not competent to judge the net effectiveness of such programs nor the potential constructive role in the future.

A somewhat different type of risk assumption—and one of tremendous significance for construction—has occurred in the insurance or guarantee of mortgages or other loans. These may require little or no government cash outlay, now or later—merely a pledge to spend under certain conditions. Perhaps there is here a creative use of government financial power—public assumption of some risk-bearing that will reduce the obstacles of private enterprise without any appreciable offsetting harm in taxes.

To return to more traditional "investment" activities of government: natural resource development and conservation! The remaining public domain, largely but not exclusively federal, is a resource of incalculable (but not necessarily unlimited) value. Rising population and rising income will create greater demand for natural resources—if nothing else, space for habitation, work, and recreation. Moreover, growing income should ease the problem of preventing great losses from rampaging rivers. To prevent deterioration of what we have and to enhance its usefulness most effectively, we must use government funds and power.

Yet it may well be that a substantial mixture of private activity is also desirable. But how can we get the best mixture? The techniques used in the disposition to private firms of federal rights to offshore oil—for not inconsiderable fees—represented something of an innovation, I believe. Inherently, however, this is the kind of situation in which there must be uncertainty about the course of action most fruitful for the public. We still dispute the relative merits of public and private power. For most effective handling of such things as flood control, govern-

ment's power and purse are essential. Yet the more local (i.e., regional) nature of the work and of the benefit suggests to me that the bulk of the costs should be paid not by taxpayers throughout the country but by persons in the broad regions affected. My own qualifications for discussing specific issues are so limited, however, that I venture nothing more than to end with statistics on what is now being spent. In 1954, total spending classified under "natural resources" was \$27.00 per capita—four-fifths by the federal government. State-local spending rose from 11 cents per capita in 1902 to almost \$5.00 in 1954. In addition, tax advantages are given to some private activities that enhance the worth of natural resources—but more (very large depletion allowances) to those that encourage what may seem unduly rapid exhaustion.

Improving the Efficiency of Markets. A strategic use of resources for speeding economic growth is to improve the efficiency and effectiveness with which markets operate. The division of labor—specialization—depends, as economists have long emphasized, upon the extent of the market. And for this purpose "market" means more than the total of purchasing power or of area or of population. It also includes the knowledge of alternatives—accurate information about others (and oneself), as to what they have and want and can do.

The range of opportunities available will assuredly influence the effectiveness with which resources can be used. The practical range depends upon information about possibilities and then upon costs, in the broadest sense, of choosing those that are most promising. Resources used to expand the practical opportunities—enlarging knowledge, for example—may bring gains far greater than the costs. And the general public interest may be significantly larger than any private provider of the service can charge for; nor will nonprofit organizations fill all the gaps. Hence government spending to create opportunities—and to permit us to take fuller advantage of them—can bring positive returns that the market mechanism cannot be expected to yield under normal profit—plus philanthropic—motives. Here one finds some of the reasons for government provision of highways and other transportation facilities, the postal system, statistics, and other such services. The "social accounting" involved in trying to learn what kinds of activities may yield such returns, above the cost, raises problems far more complex than we can solve with confidence. It is still harder to measure the extent to which such policies can be carried wisely.

In terms of spending today on items in this broad group, streets and highways are most important. Per capita spending on highways of \$34.00 in 1954 compares with \$2.21 of 1902 and \$12.00 in 1940. Here, again, the growth has been at a higher rate than income, but it does not seem "enough." The baffling issues of street and highway finance now

press on us in various ways. Although they are the subject of a special session in this group, I take the liberty of calling attention to a feature not always recognized adequately: Our present method of government spending to provide the service—a type of finance which attaches little variable cost to specific use—may be somewhat self-defeating because it adds to the problem by encouraging overuse. Urban congestion is a most striking case. While I am inclined to the view that our economy would gain from some increase in the percentage of total resources used for street, highway, and parking facility construction, I am confident that the problem needs broader analysis than it usually receives. Might we not, for example, gain more by shift of some of the government spending (or tax reduction) to stimulate fuller use of railroads, buses, and other mass movers?

Another type of government spending to improve the operation of markets would be provision of better information on an important, but inadequately known, market: that for human services. The research of the National Manpower Council, for example, continues to reveal that we have very much indeed to learn about human beings as workers and about their jobs. A reasonably attainable improvement in the average quality of knowledge about the specific jobs open and the people that might fill them should over a period of time raise productivity—not dramatically, but appreciably. A by-product would probably be more enjoyable hours at work. Business, of course, has enough interest in this problem to use its own resources to increase its accomplishment. Yet the small size and local nature of so many firms, plus the inability, for various reasons, of individuals to spend enough to serve their own interests fully, create a persuasive case for public effort. The employment services associated with unemployment insurance and the guidance work done in public schools today are too limited to accomplish what I have in mind. Yet they may form the best nucleus for a more complete, more intensive and skilled system; or perhaps something new could wisely be added. We should certainly consider, sympathetically and with imagination, ways of using government spending at this strategic point in the economy to improve a major market.

Another area in which private spending cannot be expected to do all that is in the public interest in improving markets lies in antimonopoly, procompetition policy. Here the role of government is crucial. Yet it is one that requires relatively little spending to get highly effective results, assuming that the law to be enforced embodies adequate guides. Economists and others will dispute about what constitutes a desirable antimonopoly policy. This uncertainty is in itself an obstacle to deciding the amount government should spend, or how. Yet I believe there is agreement that within wide limits competition acts as a spur to eco-

nomic progress. There is also agreement that government can do much to prevent the restrictive actions of business, labor unions, and other groups which can benefit by curtailing competition if they are free to do so. The opportunity lies not only with federal but also with state, and perhaps even local, government spending.

Financial markets also play a vital role. The discussion of savings-investment relationships has impressed upon our minds that healthy progress requires institutions that will efficiently aid the process of getting funds saved to those who want them to pay for new capital formation. And, of course, it is important that they get where their use is greatest. The investment process offers a strategic point for government spending to assist business and private investors make better judgments—a point where modest sums may permit significant improvement in the operation of a market of exceptional importance. What type of spending? How can government improve on private efforts? One opportunity is familiar: to help prevent error—the waste that comes from fraud, deception, ignorance. By enforcing blue-sky laws and SEC type of regulation, government can with small outlays—not even a little drop in a large bucket—reduce waste. Another possibility is to provide more knowledge of where opportunities exist and where funds are available.

Although private institutions can reasonably be counted upon to do much, government officials, gathering data and perhaps acting as intermediaries, can contribute usefully.

These examples of government spending to improve the functioning of markets by no means exhaust the list of possibilities. They illustrate.

Concluding Comment. What I have said probably seems obvious or vague. If so, this fact reflects, I believe, the state of knowledge of our profession on aspects of public policy of great concern. It would be nice if we knew more. Yet uncertainty results inevitably from the immeasurable, nonquantifiable aspects of life so closely affected by government. Uncertainty also results from the fact that our topic is essentially the unknown. Our topic is also, to some extent, the undetermined. Within the limits fixed by forces that are beyond our control, we have opportunity to make government and business and other private organizations better or poorer agencies for helping satisfy our wants, including our desire for better wants. Both business and government today differ significantly from their predecessors of, say, a generation ago. The most creative use of government expenditure in the future will depend not only upon the needs left unsatisfied by the private sectors but also upon the quality of government—the caliber of the civil service and the military, the conditions in which they function, and the kind of voters we and our children prove to be.

GOVERNMENT EXPENDITURES AND THE SHORT-RUN GOAL OF STEADY GROWTH

By DAN THROOP SMITH
Harvard University

It is not necessary, I presume, to argue or demonstrate that government expenditures and taxes have a significant influence on economic growth and its steadiness. But though there is general agreement on the fact of importance, there are wide differences of opinion on the nature and extent of the influence. As has been so frequently true in the development of economic analysis, a succession of overly simplified theories has been advanced. Oversimplification usually occurs because of an inability, or unwillingness, to recognize that people are complex beings and that people's decisions and actions, which in the aggregate determine the course of economic activity, are determined by a multiplicity of motives which economic theory must recognize if it is to be at all realistic.

A little over twenty years ago, an economist of some prominence predicted that if a certain government financial policy were followed for a year, various dire consequences would occur. An unsympathetic reporter remembered the prediction and at the end of the year, after the policy had been followed and the consequences had not occurred, asked whether the nonoccurrence did not prove the error of the theory on which the prediction had been based. The reported answer from the unabashed theorist was: "Not at all. If the American people had understood economics, it would have happened." Though in a sense extremely funny, the remark had sad and even dangerous implications, indicating as it did a complete satisfaction with a naïvely unrealistic theory. The elaboration and refinement of theoretical interrelationships is a fascinating intellectual exercise, frequently more appealing than an inquiry into the reality of the underlying assumptions on which the elaboration is based. But the usefulness of such theory as a basis for public policy is, to say the least, doubtful.

In view of the many gaps in our understanding of the actualities of economic forces, it is not yet appropriate to try to present an integrated theory of the influence of government expenditures and taxes on economic growth. Nonetheless, I hope it may be useful to review some of the ways in which various aspects of expenditure and tax policies may, under various circumstances, have various significant influences on the steadiness and rate of economic growth.

It should be noted that I have referred to both expenditure and tax policies; this is more comprehensive than the designated title of "Government Expenditures and the Short-Run Goal of Steady Growth." The broader concept is necessary because a consideration of expenditures alone, without reference to taxation, is altogether inadequate. A consideration of the aggregates of expenditures and of taxes, or of a net surplus or deficit, is also inadequate. The specific items of both, and changes among them, may be of much more significance than changes in total or net figures. Increased attention to the composition of expenditures and to the structure of the tax system marks a great improvement over the not uncommon belief in the mid-thirties that the size of the deficit and its proper manipulation were the determining factors in the country's economic welfare.

Taxation and government expenditures involve a diversion of spending from private into public channels. The government segment of the economy represents the activities which are being provided and paid for by joint rather than individual action. These joint actions are significantly different from other economic activities because the payments for them, in the form of taxes, are compulsory and the decisions on government spending may be made without regard to decisions on methods of payment. And if no other funds are provided, the federal government can create its own means of payment, with possible far-reaching consequences for the rest of the economy. But in spite of these special characteristics, one may first approach the analysis of government spending and its financing in terms of alternative uses and sources of funds.

The basic question is, if the government did not spend and tax, on what things and in what amounts would individuals spend the larger funds left in their hands by the lower scale of government activities? Since particular dollars of revenue are not often tied to particular dollars of expenditure, either by categories or on an increment basis, it is usually not possible to analyze any specific situation in these terms. Conceptually, however, the approach is significant, if only to indicate the uncertainties and range of possibilities in an actual situation. Another facet of the same problem is brought out by the question: If some particular source of funds were not drawn on by the government, what other source would it use, and how would reliance on it produce different effects on private spending than would the use of the first alternative source?

Decisions on government spending and taxation are essentially political and social ones. A democratic government's purpose is to carry out functions and provide services which cannot be secured at all—or can be secured only ineffectively or at an excessive cost—by in-

dividual action. Decisions on the scale of activity and the methods of payment arise out of the various forces which are involved in the entire governmental process. Though they are not basically economic decisions, they may have important economic consequences, influencing the composition and distribution of the current national income and its pattern of future development—which is, of course, the subject of this paper.

Three levels of analysis are useful. First, expenditures and taxes may be considered separately, with attention to the direct effects of different sorts of both. Then, the government's fiscal position must be examined in the light of other economic conditions and forces, with appreciation of the fact that the effects of any particular tax and expenditure program will depend on existing circumstances. Finally, brief recognition should be given to the importance of symbols influencing business and consumer decisions to spend and save; the indirect symbolic impact of a government's financial policy may be greater than its direct significance.

In addition to the usual classification by object or controllability, expenditures may be considered from the standpoint of their effect on the production of income in the private segment of the economy. Some government expenditures may have both immediate and long-range beneficial effects on private income creation. Improvements in health or in educational levels, especially in technical skills, are conspicuous examples. (In emphasizing technical skills, I do not in any sense wish to suggest that they should be given priority over other educational objectives which have less material consequences.)

Other expenditures may have a catalytic effect on private spending. Some research may be in this category by providing a basis for new industries or techniques. In a different way, certain municipal expenditures may be needed to pave the way for private construction. Government outlays in underdeveloped countries also may be helpful in stimulating or creating a basis for private investment.

It also must be recognized that government expenditures may have very substantial depressing effects on private spending. Outlays on a program to develop government-owned business would be likely to deter business investments in the same and allied fields and lead to a net decrease in total spending. Also, government expenditures which are recognized as not being soundly financed may discourage private spending.

A third type of government expenditure is that which directly sustains private spending. Unemployment compensation payments are a conspicuous example. Outlays on a flexible public works program which is expanded to take up slack in private construction is another.

The foregoing three ways of looking at government expenditures bring out some of the features which require analysis to be carried beyond a mere attention to aggregates.

Even if there are no shifts between any of the foregoing categories, it is necessary to consider changes in the composition—or what may be called the “mix”—of government expenditures within a single category. A change from the purchase of products, for example, to the direct employment of people or from one sort of people to another is liable to have significant results which would be obscured by an undue emphasis on totals.

For those of us who are impressed with the difficulties arising from structural maladjustments in the economy, this possibility is especially important. Because of the nontransferability of people and productive facilities, the expansionary effects of increased outlays of one sort are not likely to counterbalance with any precision the restrictive effects of reduced outlays of another sort. The net effect of substantial changes within a continuing total may go in either direction, depending on elasticities of supply, the transferability of resources, and the various relevant compounding forces.

Just as a shift in consumer spending from housing to vacation travel, for example, or from clothing to luxury foods can produce serious disturbances even though total spending is sustained, so can shifts between various sorts of government expenditures. And just as the likelihood of structural maladjustments from changes in the composition of consumer spending increases with a higher standard of living, with greater margins of postponable or variable expenditures above subsistence, the possibilities of similar disturbances from changes in government expenditures also increase as the expenditures increase in amount and variety.

Probably the most significant contrast between government and private spending, from the standpoint of economic analysis, is the fact that a decision to spend through the government means that more must be raised by taxes, if we ignore for the moment the possibility of borrowing. Taxes considered by themselves almost inevitably have a repressive effect on the economy. By contrast, a decision by an individual to spend more on one thing simply means that he will have less to spend on something else, so long as he lives within his income. A shift between types of private spending has no repressive effect comparable to that arising from the impact of increased taxation which occurs when a shift is made from private to public spending.

The effects of taxes may be appraised both in the aggregate and in detail. Arguments have been advanced that there is some specific predictable figure, stated as a percentage of national income, perhaps

even a single figure for all times and all countries, beyond which a tax system breaks down. By inference, one may presume that under this theory the tax burden will not have serious repercussions until it reaches this critical point. On an earlier occasion, I have commented on the oversimplification which seems to underly this conclusion and on the dangerous implications it has for policy. The structure of a tax system is at least as important as the aggregate burden imposed by it. There is increasing recognition of the differing effects of various forms of taxation. Though there is by no means agreement as to what the effects are, it is nonetheless encouraging that attention is being directed to analysis in these terms.

However, regardless of the form of taxation, the very fact of a compulsory levy almost always has a repressive effect. Consider, for example, two situations in one of which an individual has an income of \$5,000 and pays taxes of \$500, and in the other the same individual has an income of \$10,000, half of which consists of interest on government bonds, with a total tax of \$5,500. The net income after tax is the same in each case: \$4,500. The additional tax in the second case is balanced by a transfer payment of an identical amount. But is it possible to believe that the mere existence of a tax amounting to 55 per cent of income as compared to a tax of 10 per cent in the former situation cannot fail to have a repressive effect? The proposition is sometimes advanced that taxes imposed to pay for domestic government expenditures do not involve any real burden because they are mere transfer payments. This ignores the very important impact of tax rates upon individual motivations and decisions. (I might add in passing that it was this very statement which first roused my interest in economic theory, along with a certain skepticism, when I heard it over thirty years ago in a college freshman course.)

Reference is sometimes made to incentive taxes. This phrase is misleading if it is understood to mean that any tax will positively induce action, with a further implication that a tax system composed of incentive taxes would in some way spur a country's economy on to ever higher levels of activity. It is true that differential tax treatment may cause a shift of activity from a highly taxed activity to one which is less highly taxed. The net effect may even be to increase the total effort and investment in the less highly taxed field over what it would have been in the absence of any taxes or under a neutral tax structure. But the plusses must not be viewed alone; the minuses are always in the background, and a net minus position seems to be the almost inevitable result of any tax system considered by itself. The final net position, plus or minus, of government financial operations comes from balancing the effects of expenditures against the effects of taxes.

I shall not take the time here to do more than restate some of the principal points concerning the repressive effects of taxes which have been made in various monographs in recent years. The very recent set of papers on "Federal Tax Policy for Sustained Economic Growth," assembled for a subcommittee of the Congressional Joint Committee on the Economic Report, gives an outstandingly good range of differing opinions on most of the major controversial issues in the field of federal taxation and is useful to both experts and students.

Broad generalizations about the disincentive effects of different forms of taxes gloss over the specific ways in which the effects of taxation become manifest. Differences in reactions have been found to be likely between owner-managers and salaried executives in large organizations, or between investors seeking income and those seeking capital appreciation, or between older executives who became accustomed to a high standard of living in years of moderate taxation and younger executives whose net incomes and standards of living, though lower, are still increasing even under high taxes. The repressive effects of taxes are more likely to involve such things as shifts in investments, a freezing of executives with present employers, or a long-run change in selection of careers by new entrants than an immediate reduction in physical and mental efforts.

The lack of uniformity in the reaction of people to taxation varies both with their personal characteristics and with the circumstances in which they operate. The combination of pecuniary and nonpecuniary motives varies among executives; for those whose chief goal is financial reward, a high income tax will have a different effect than it will on those who find great satisfaction in creative administrative work or who enjoy the prestige and power of a high position.

The importance of circumstances is apparent if one compares the reaction to taxes of two individuals. One is the proverbial primitive man who works only enough to buy salt or some other essential commodity in a limited amount. A tax on the commodity or on the income of such a person, if an income can be imagined in such a situation, is likely to result in greater effort to secure the essentials of life. By contrast, a person whose standard of living includes a fair number of what he regards as luxuries and whose balance between effort and leisure is a close one, is likely to react to a higher tax by decreased effort.

The effects of a tax burden will also vary, not only with the kinds of taxes used, but with the structure of rates and other technical features of any one form of tax. For example, an income tax schedule which has the effect of imposing substantially higher marginal rates on overtime pay would be peculiarly bad. Or, to take an entirely different example, the extent of deductibility of research expenditures in

the determination of corporate taxable income is likely to have a significant bearing on industrial development. And the tax treatment of pensions, stock options, and other special forms of compensation will influence not only compensation patterns but executive mobility and attitudes. The definition of capital assets influences the direction of flow of investment, and the treatment of capital losses influences the willingness to take investment risks.

Similar analytical distinctions should be made with reference to other forms of taxation. Assessment methods in property taxes influence the location and types of new construction and the relative values of new and old buildings. Differential excise taxes influence consumer spending and may have an important bearing on methods of production or the degree of integration in industries. Estate tax provisions influence the continuity of independent small business concerns and the extent to which property is held by trustees rather than directly.

The above examples in no sense give a thorough or even a systematic coverage of the ways in which particular aspects of a tax structure, viewed by itself, may affect the rate, the direction, and the regularity of economic growth. It is sufficient here to note the importance of the subject in any thorough analysis of the effects of government expenditures and taxation on economic growth.

When one removes the limiting assumption that expenditures are financed currently by taxation, a further range of variable results is opened. The analytical problems are those of trying to determine how the combination of certain expenditures and certain specific forms of borrowing changes the flow and direction of spending over what they would have been if, on the one hand, neither the expenditure nor borrowing had occurred, or on the other hand, some different source of borrowing had been used. The same rhetorical questions stated earlier can be rephrased to cover alternative sources of borrowed funds or, more fundamentally, alternative combinations of expenditures, taxes, and borrowings. The net result is derived from a series of plus and minus items.

Just as different taxes will have differing effects, so, too, different forms of borrowing will produce differing results. Government borrowing which simultaneously fosters and taps new savings has entirely different consequences from government borrowing from a central bank, which is in effect forced to expand the country's credit base because of Treasury requirements.

As one turns from an appraisal of the direct consequences of the various specific items of expenditure, taxes, and increase or reduction in debt to the composite or net effect of a particular combination

of them, the result varies greatly with the existing economic situation.

It is generally desirable that the budgetary position should partially offset rather than amplify any inflationary or deflationary excesses in the private segment of the economy. In a recession, it would not ordinarily be desirable to increase taxes or to reduce expenditures without simultaneously reducing taxes. Nor would it be judicious during a boom to increase expenditures or reduce taxes if borrowing were required as a result of either action.

But though there may be agreement on common-sense policies of avoiding government action which would be perverse in its effects, it by no means follows that it is appropriate or feasible to attempt to smooth out all fluctuations by changes in tax and expenditure policies.

The economic system is not like a gearbox with all the gears so firmly meshed into each other that force applied to any one will produce predeterminable effects on all the others. Push-button economics, though intriguing to the model builders, ignores the many points at which variable degrees of slackness and of high leverage may develop. Judgment in appraising a situation and estimating the probable effects of a fiscal policy is essential.

In the exercise of judgment, it is useful to consider the concentration or generality of any excess or deficiency of spending. If it is concentrated, the particular areas of excess or deficiency and the availability of policies related specifically thereto and the possible incidental repercussions of any change in government policy may lead to offsetting and nullifying changes in private sectors of the economy. For example, a downturn in inventories, after a period of inventory accumulation during a previous inflation, probably cannot be immediately stopped unless inflation or expectation of it is resumed—a hardly desirable remedy. A leveling-off of purchases financed by consumer credit calls for a different policy than a decline in an export market because of the development of domestic sources of supply in the former importing countries. And regional distress arising from a temporary shift in consumer demands will respond best to different remedies than distress arising from exhaustion of a local natural resource. Perhaps the foregoing distinctions are all obvious and any reference to them is redundant. And yet the enthusiasm of some people for all-out government action in the late winter and spring of 1954 suggests an unwillingness to analyze and deal with specific situations in terms of the existing facts.

We need to know a great deal more about the degree of flexibility in the various important categories of private spending and about the circumstances which influence the fluctuations therein. The splendid work which has been done on expectations needs to be followed

by a more difficult examination of the motivations which determine the plans for consumer and business spending. It is in the last connection that symbols, to which I referred earlier, may be found to be important.

Confidence is basic for sound long-range consumer and business planning and for steady economic growth. And yet confidence is an elusive attitude, hard to define and even harder to measure. Its existence or absence reflects a consensus of opinion. Confidence, also, I suggest, arises as much from a general belief that a government policy is sound and will earnestly be pursued as from any statistical facts. The repercussions of a budget position on private spending, which may be much larger than the direct effects of the budget position, are by no means inherent or uniform. But they are a worthy subject for attention and inquiry.

Symbols are important in the tax structure and the pattern of expenditures, as well as in the net budget position. Taxes which are advocated and adopted as punitive measures are likely to have repressive effects disproportionate to their direct pecuniary impact. And tax relief measures, by improving confidence, may also have an importance disproportionate to what might logically be expected. From this standpoint, the partial return in 1954 to the sort of relief given to dividend income from 1913 to 1936 may have unexpected significance. Greater latitude in depreciation and relaxation of the restrictions against accumulation of surplus in closely controlled companies, especially for small companies, may also be important symbols. A modification of the tax treatment of foreign income has been urged for its announcement, or symbolic, effect as much as for its direct influence on investment incentives.

One final point deserves attention, though it will only be mentioned here. The increasing attention to so-called "built-in" flexibility in a fiscal system has been a conspicuous feature of the last ten or fifteen years. It reflects a recognition that newly created expenditure programs are likely to be wasteful and even an appreciation by spending enthusiasts that an ever higher level of expenditures may sometime become excessive. A decrease in revenue because of the sensitivity of the tax structure to business conditions can be a quick expansionary influence. But the enthusiasm for built-in flexibility may lead to excesses from two standpoints. First, it must be recognized that a tax system which, for instance, relied solely on income taxation would be even more "flexible" in the variability of its yield than might be anticipated or desired, and the decrease in revenue from a business decline might produce serious disturbances in the money market and in the all-important element of public confidence. Also, and even more importantly, a tax structure designed to have extreme flexibility would

be very likely to place undue emphasis on the very taxes which are the most repressive on the incentives needed for long-term economic growth. This last point deserves detailed examination, for which I do not have time in this paper. It is enough to note that there is likely to be a direct contradiction between the objective of built-in flexibility in a tax system and the objective of minimum tax repression of incentives for long-term growth.

I have no general summation for this rather discursive review of the many variable elements on which the effects of expenditure and tax policies depend. I have given my reasons for doubting the possibility of developing any useful formulae for predetermining the actual quantitative effects of any particular combination of expenditures and taxes. But this is not to suggest that action be suspended while knowledge is perfected. Policy decisions must be made continuously, and for such decisions judgment is needed. Additional knowledge will strengthen the basis for the exercise of judgment, but it will never take its place.

DISCUSSION

WALTER FROEHLICH: Discussion of the topic of government expenditures and economic growth has reached a fruitful stage. Roughly about a generation ago the prevailing thought was that government is a burden on the "productive" part of the economy and that only a few selected expenditures are "productive" by creating future additional private and/or governmental income. About half a generation ago the prevailing hypothesis was that governmental expenditures produce growth by increasing gross national product through a multiplier process. This is ordinarily so for deficit spending and is mostly so otherwise, assuming the common version of the balanced budget theorem. We have now reached middle ground. Present views could be called a synthesis were one not afraid of the scent of Hegelian dialectics lingering behind that term. Unfortunately, the analysis of structural growth and the analysis of growth through reaching fuller use of available resources are not yet completely integrated. As used here, the terms long and short run are, in common with the usage in economic theory, "periods under consideration" which can be separated only in the laboratory of the mind. Structural changes have immediate effects on an economy; a society with a policy of steady high-level employment does develop a different structure. One might add that analysis in real and in money terms also can be separated only temporarily, and more integration is necessary than mere deflating of time series by purchasing power.

Expenditures alone are not always a good measure of governmental activity. Beyond pure regulation there is an ever increasing amount of intermediate activity like tax exemptions, guarantees for loans to be made by private sources, insurance programs, offers to rent and to contract. These may, but do not always, lead to expenditures. In areas like health, education, and recreation, there is also a fundamental difference between the government undertaking activities and the government helping private endeavors. The combining of private activity with use of governmental funds without destroying private initiative, experimentation, and diversification is a problem indeed. Any of these fields may require its own particular solution to which the fiscal expert can contribute but little. Acute illnesses and chronic disabilities, e.g., may require quite different approaches. They should all have in common the thought that governmental activity is not justified because it is useful but only when private activity alone or with help from the government cannot do the job at all or at least not reasonably well.

Comprehensive information like Professor Blough's book on the taxing process and Professor Smithies' on the budgetary process has also brought greater realism to our discussion. We know now more about the viability or lack of it of taxes and expenditures and of the time necessary to effectuate changes. Better knowledge of the taxing process may make us more favorably inclined to reliance on expenditure changes; better knowledge of the taxing and budgeting process may increase our willingness to rely on monetary rather than on fiscal policy.

Some discussion of our increasing defense related expenditure cannot be avoided. Such spending has contributed considerably to the growth of gross national product. Government related expenditure—especially defense related expenditure—changes in many ways the structure of the economy; spending is done in the sector of large industry. It might be controversial whether there is a noticeable increase in industrial concentration, but clearly the relative amount of manufacturing and the relative degree of its concentration are greater than they would be without defense expenditures. Government itself has also those characteristics of bigness which we think of when we speak of bigness as characterizing modern society.

This trend to bigness only strengthens forces inherent in an increasingly urban, fast growing, and mobile society, with a declining strength of the family as a consequence. Irrespective of the social philosophy prevailing, certainly a more than proportionate increase in social capital is required. A more than proportionate increase is necessary to build schools, streets, highways, water and sewerage systems, etc. Strengthened social services in order to compensate for weakened family ties have to be added. But many decisions in specific areas still remain in doubt. Fundamentally, we must consider growth in terms of social priorities (acceptable social values); that is, in terms of explicit and consistent moral judgments, if that term does not strike a discordant note. We might simply ask whether money is well spent in the sense of whether we are "getting our money's worth" as to defense or health expenditures and the like. Few will doubt the value and necessity of these activities. Their value might not be easily measurable but only the most naïve or narrow can fail to give, e.g., defense or health a very high priority. But as Mr. Little has pointed out, we may use for the purpose of welfare judgments separate indices for "private services and consumption" and for "final collective welfare goods." These indices might give evidence assisting people to make welfare judgments but they cannot, due to their basically different nature, be summed up into one comprehensive figure. The cost of maintaining the framework of society and the prices of goods produced within the framework cannot be added up into an income aggregate meaningful for any welfare analysis without begging important questions. Government activity subtly changes the quality of specific services as well as the social framework in ways for which statistics of gross national product do not account. Valid national income comparisons require the application of an invariance test. That means that figures in order to be comparable must refer to an invariant framework of society.

For the short run, the importance of governmental expenditure has perhaps been overestimated. Recently tax policy and, even more, monetary policy seem to have come to the fore. Yet if these devices seem to be well suited to curbing inflationary excesses, it may still be likely that expenditure variations are a better method to counteract recession. The relative clumsiness of taxation and the long time which elapses before economic effects make themselves felt (though some effects come earlier by anticipation) might make us wary of taxation as a tool of anticyclical policy. Government expenditures, on the other hand, may have compensatory restrictive effects on private expenditures.

Built-in flexibilities, though most desirable, might not be strong enough; appropriate planning might be difficult.

Even in the use of theoretical models we have to be extremely careful. The multiplier effect pictures purely monetary changes and in the twilight of high-level employment might not be clearly indicative of the change in real terms. The effect refers to an income concept where, by including government use of resources at cost, many questions are begged. It has been pointed out that the multiplier under conditions of a balanced budget may well be negative. Lastly, national income increases may not mean increased welfare or growth in any relevant sense. This is so in the sense of not approaching an assumed set of values but also in the customary welfare sense of not increasing aggregate satisfaction. Explicit value judgments will be necessary in order to relate any statement on expenditures to a meaningful statement on growth if growth is not to be taken in a most formal sense. Meaningful statements on growth explicitly referring to acceptable, not only to factually accepted, social values must be attainable. We can then improve a little bit on the banality that many, though not all, government expenditures are frequently, though not always, conducive to economic growth.

JOHN F. DUE: The paper by Professor Harriss has served to focus attention upon the fact that governmental activities may have substantial effect upon the rate of economic growth in the private sector of the economy, quite apart from any effects which they may have upon the attainment of full employment. His emphasis is upon the governmental activities themselves rather than upon the expenditures necessary to carry them out, or the raising of the necessary funds, apart from incidental reference to the possibility of increased use of the policy of the sale of services to the users. He has called attention to some of the major sectors in which additional governmental activities might offer particular advantages from the standpoint of growth. In some of the cases it is very evident that relatively small increases in expenditures (relative to the size of the over-all budget) would provide very substantial stimulus to a more rapid rate of increase in output of the private sector of the economy.

Much of the paper may appear to be an elaboration of the obvious. But the fact that readjustments which are rather obviously desirable, in terms of usual welfare standards, are not being made in itself suggests that such elaboration and re-emphasis are warranted. There are several serious obstacles in the path of needed revisions in the pattern of governmental expenditures. One is the extremely high burden of defense spending, which creates great pressure to hold down federal expenditures for other purposes. A second is the limited tax resources of the local governments and, to a lesser extent, of the states. The very nature of the federal governmental structure, however desirable it may be from many points of view, is always an obstacle in the path of attainment of optimum levels of governmental expenditures.

A third is sheer inertia: the failure of governments to reconsider carefully the scope and nature of their activities in light of changed conditions. Old activities are carried on under circumstances in which they are no longer warranted; new activities justified in present circumstances are not under-

taken. Closely related is the effect of traditional lines of thinking on the part of society as a whole, of the acceptance of the philosophy that traditional activities of governments are justifiable ones, and that new activities are unwarranted unless an extremely obvious case for them is made. For example, the spending of money on highways is universally regarded as a justifiable function of governments, although many of the roads built could never pay for themselves in the financial sense. Yet any proposal that governments subsidize public transportation—particularly that provided by private firms—is typically regarded with disfavor. Yet one of the most logical steps which could be taken to meet the ever growing problem of traffic congestion in metropolitan areas—a very real bottleneck, in a literal sense, to economic progress—is that of subsidizing railroad commuter traffic and other public transportation in order to insure adequate service and low fares and lessen the number of cars crowding the highways. The indirect benefits to society from public transportation are very significant, yet the operators of the services cannot realize financially from these benefits. Accordingly, a subsidy from tax revenues may be justified on the grounds of attainment of a more optimum use of resources. But the notion that such activities must stand on their own feet financially interferes with the establishment of a logical policy. Instead of financial aid, the public transportation enterprises are often burdened with disproportionately heavy taxes; fares rise, important facilities are abandoned, and highway congestion is increased. Real costs, in the form of loss of time, increased accidents and expenses of car operation, and additional expenditures on highway improvements, may greatly exceed the subsidies which would have been necessary to insure the provision of adequate mass transportation.

A final obstacle is the pressure of various interested groups against changes which might adversely affect them. Unfortunately, some of the most significant governmental activities do not offer direct benefits to pressure groups. These activities tend to suffer from lack of adequate funds, while relatively excessive amounts are spent for pressure-backed functions. In some fields in which additional governmental expenditures could easily be justified, such as housing, a very delicate balance is required between the spheres of governmental and private activity, or the latter will be seriously discouraged. Co-operation to attain such a balance may be very difficult to attain.

Professor Smith's paper is not confined to a discussion of expenditures, but deals with taxation as well, outlining the possible effects of tax and expenditure policies upon economic development. Professor Smith emphasizes the need for considering the net effects of the combined tax and expenditure program rather than those of each element in isolation, and places considerable emphasis upon the significance of psychological reactions to various policies.

The paper, for the most part, offers no conclusions about actual effects of present policies, but merely notes various possibilities. Little exception can be taken to most of the argument. But certain sections are open to question. It may be argued that Professor Smith overstates the repressive effects of tax payments upon individual behavior. His contrast between the reactions of persons to tax payments, compared to those to the purchase of privately-

produced goods, appears to be overdrawn. From the standpoint of society, taxes represent payments for governmental services in large measure; to the extent that they are so recognized by individuals, despite the lack of direct correlation between the individual payments and the benefits received from governments, the repressive effects are minimized. Increased levels of education and social consciousness tend to increase this attitude. We have extremely little evidence of the actual effects of taxes upon individual behavior, and economic analysis can tell us very little. The over-all magnitude of the repressive effects may be of much less magnitude than is suggested by the tenor of Professor Smith's discussion. It is obvious that taxes may—and perhaps do—constitute a very real check upon economic development. But the evidence as yet is meager.

Secondly, the speaker's statement that a person who is able to enjoy substantial luxuries "is likely to react to a higher tax by decreased effort" cannot be demonstrated, either analytically or empirically. The actual effects in any case depend upon the relative strength of the income and substitution effects of the reduction in net income, and no generalizations are possible with the present state of knowledge. At best the concept of a luxury is a nebulous one. "Luxuries" of today are regarded as fundamental necessities tomorrow—ones which persons will work harder to obtain if a tax reduces their disposable income.

Finally, Professor Smith's concluding argument that taxes which offer maximum built-in flexibility are likely to be those which are the "most repressive on the incentives needed for long-term economic growth" must be interpreted with care. A system of taxes with highly flexible yield and severe incentive effects could without doubt be devised, but it is by no means obvious that a highly flexible system must have such incentive effects. The conflict between built-in flexibility and maintenance of incentives has not been demonstrated but is merely asserted by Professor Smith, on the basis of implicit assumptions about the incentive effects of income taxes which are not demonstrable with the present state of knowledge.

MARION CLAWSON: In thirty minutes Professor Harriss found it possible only to list and briefly describe the major ways in which government spending influences or is related to economic growth—such is the variety, magnitude, and complexity of government programs today. Professor Smith considers the interrelations between government expenditures and taxes on the one hand and private economic activity on the other hand; he rightly stresses the importance of taxes, because government expenditures usually mean roughly equivalent taxes from some source.

There are certain basic social services, such as welfare, health, education, and transportation, which the totality of all government must expand as population grows and per capita incomes rise. Expenditures on these services in the past have risen rapidly, and in the future must rise much faster than national income rises. The result of government expenditures on these services is long, not short, run, and in general could not be anticyclical. Unless government at all levels makes sufficiently large expenditures in these fields, economic growth

and national welfare will be stunted; but if the expenditures are made, in the long run government revenues will rise at least proportionately to its expenditures. There are problems of allocating the responsibility among levels of government and of raising the necessary revenues, but we cannot afford to fail to provide these services.

The really major items of federal expenditure exert a strong stabilizing force on the economy, though not an anticyclical one; and this without careful planning to this end. The most important item is defense. Expenditures for this purpose are properly based primarily on factors other than their effect on economic growth, or even on the business cycle. There is unfortunately little hope that the present high level of defense spending will fall, and it is much more likely to rise. Various forms of veterans' assistance and interest on public debts of all kinds are stabilizing forces. Both are likely to grow, but their contribution to economic growth is uncertain and remote. The level and source of federal taxes necessary to support these major activities have important consequences upon the private economy; but, as Professor Smith says, "particular dollars of revenue are not often tied to particular dollars of expenditure," and it is not easy to trace their direct effects. A major, potentially anticyclical force is unemployment compensation; it rises when other flows of funds in the economy decline. In total, these programs, because of their magnitude, will have an important stabilizing effect on the economy.

My own special interest is in the natural resource field, and government expenditures are a major force here.

The demand for outdoor recreation will grow rapidly as the total economy expands. As nearly as I can judge, the use of land and water for outdoor recreation has risen at a rate at least twice as great as the rate of rise in national income, measured in constant prices. There is every reason to expect a continuation of this trend. Provision of outdoor recreation is a peculiarly government function. Aside from the fact that individuals might not allot to this activity as much of their income as seems socially desirable, another major obstacle to private provision of recreation is the difficulty of collecting charges for it at costs reasonable in relation to the charges. Provision of local parks and recreation areas is a function of state and local government, but many federal lands have major recreational values. The federal government must increase in a major way its expenditures on federal lands used for recreation. I believe we will shortly see a demand for federal grants-in-aid to states and municipalities for outdoor recreation.

The federal lands—national forests, national parks, grazing districts, etc.—should have substantial additional sums spent upon them, and as a result they will produce more raw materials and more services and return more revenue to the federal treasury. Expenditures on such lands are not only self-liquidating, due to the increased revenues, but also stimulating to the private economy.

Federal aids to agriculture will surely continue, perhaps on an increased scale. The focus of emphasis needs shifting, more toward the encouragement of adjustments in factors of production than at present. More specifically, people should be aided financially and in other ways to move out of agriculture and get settled elsewhere. Farm income support is too well established now to

be abandoned, though it may be modified. To some extent it is anticyclical, since it operates more in depression than at other times; but it is by no means completely so, although it could be made more so than at present. The level of the program could be adjusted upward and downward, anticyclicly to the business cycle, or the physical program might be relatively constant while the timing of payments might be anticyclical.

It is in the field of water development that government programs, especially federal programs, most need critical re-examination. It is devoutly to be hoped that some national administration can bring some economic sense out of the present competitive pork barreling. Flood control programs often have physically and economically impossible objectives. We have settled on the flood plains and obstructed the natural river channels, but we hope to escape the consequences. Reservoirs and channels that might hope physically to control the floods would often destroy as much resources as they hope to save. Major irrigation development is unneeded today or for some decades, and in any case there are few physically desirable sites left in the West for development. Even with the most generous cost allocations and interest-free money for fifty years, new federal irrigation today requires major financial help from hydroelectric power. Navigation is one of the purposes often used to justify federal expenditures on rivers and harbors, but in practice it is often not noticeably benefited or increased by the expenditures. A substantial part of the money spent on water development by the federal government is wasted. Pyramid building is perhaps defensible in time of unemployment, but much less so in a booming economy. A major new pork-barrel water development program is in the making, pushed by localities and agencies anxious to get their share. I refer to the watershed improvement program of the U. S. Department of Agriculture, which has begun in a small way but has big ambitions.

Land, agricultural, and water programs of the federal government are primarily long run in character. If soundly conceived, they can aid economic development. If badly operated, as are the federal water plans, they can be a drain on the economy. In any case, for many technical reasons their direction and tempo can be changed only rather slowly—a matter of a few years, not of a few months. In their normal operations, they are not anticyclical in any significant degree. Under the usual procedures of government, it takes too long to get a stepped-up program actually under way, and in view of the technical characteristics of many programs, actual expenditures rise slowly after funds are provided. The typical short-run business cycle is likely to have come and gone before programs of this type can make a significant contribution. In the event of another deep and prolonged depression of the type of the thirties, various anticyclical or antiemergency programs could be launched, and would be helpful. A more important consideration is to keep programs in this field operating steadily at a scale where they will make their greatest contribution to total economic growth.

Even these brief reviews seem to suggest strongly that we shall have more, not less, government in our economy over the coming decades.

ECONOMIC GROWTH VI. THE MONETARY ROLE IN BALANCED ECONOMIC GROWTH

RELATION OF MONEY TO ECONOMIC GROWTH

By CHARLES R. WHITTLESEY
University of Pennsylvania

The rapidly growing literature on money in relation to economic growth displays a considerable diversity of approaches by different writers. In attempting to simplify, one always runs the risk of oversimplifying. Nevertheless, it seems useful to point to three broad positions on the question of the relation of money to economic growth. The first is that the quantity of money is a causal factor in economic growth. An appropriate increase in the money supply can be expected, it is suggested, to induce a regular and orderly expansion in the economy; a smaller increase will retard growth or possibly cause a contraction. Changes in the quantity of money (or possibly of MV) are thought of as being sufficiently powerful to initiate and determine, in and of themselves, processes of economic expansion and contraction. It was on this brand of monetary theory that most of us of what is now the older generation of economists were brought up, though the emphasis then was on price level changes rather than on changes in output or capacity to produce. Despite the mechanical tone of this line of reasoning, it has the blessing not only of traditional quantity theory but also, apparently, of certain highly regarded modern theorists.

Somewhat resembling this position is the second point of view under which the quantity of money is related to economic growth in a permissive rather than a causal sense. Appropriate changes in the quantity of money are taken not as the factor that causes economic growth but as the condition which must be present if growth potentials are to be realized or, if achieved, are to be retained. Statements proceeding from the Federal Reserve which suggested relating monetary expansion to an assumed rise in economic potential have seemed to imply approximately this assumption.¹

Either of these positions is fairly close to conventional monetary thought. In current discussion they tend to merge into one another and it is often not clear whether the causal or the permissive aspect

¹ Cf., for example, *Business Week*, December 12, 1953, pp. 29-30. Somewhat similar statements are to be found in the *Economic Report of the President*, January, 1954, p. 6, and elsewhere.

of an increase in the quantity of money is regarded as predominant. The third point of view is less orthodox. It is that money is passive, accommodating to rather than causing or conditioning changes in business activity. In advancing this contention, Professor A. H. Hansen drew a colorful analogy, saying that a man's pants are expanded because his girth increases; his girth does not expand because his pants are enlarged.² Various statistical studies, using, shall I say, more refined analysis, have developed much the same idea.³

The differences between these points of view are perhaps not as sharp as may seem to be implied. Those who say that the quantity of money has in fact adjusted to a rise in economic activity do not necessarily deny, and may specifically state, that restriction of the supply of money, if actually effected and carried far enough, would indeed restrain economic expansion.⁴

The meaning of money or supply of money has been left intentionally vague in the foregoing comparison. There is the question of including, in addition to circulating medium or circulating medium plus reserve money, other types of liquid assets. Analysis may also run in terms of total monetary expenditures whereby the strategic factor is made to be not the quantity of money but its rate of use.⁵ Recently Professor E. S. Shaw, following leads generously attributed to Hicks, Hansen, and others, has argued for extending the analysis of money in relation to economic growth to all forms of debt, of which he treats money as one.⁶ A somewhat similar extension is involved in Raymond Goldsmith's fundamental interrelations ratio (*FIR*) where financial assets are related to total physical assets.

Extensions such as these in the categories to which monetary analysis is related are devices which will appeal to some more than to others. It is my observation that most original pedagogical or analytical devices are likely to appeal much more strongly to their originators than to anyone else. While this particular extension may make it easier

² *Monetary Theory and Fiscal Policy* (New York, 1949), pp. 185-186.

³ E. H. Phelps Brown and S. A. Ozga, "Economic Growth and the Price Level," *Economic Journal*, March, 1955; James W. Angell, *The Behavior of Money* (New York, 1936), p. 60.

⁴ It may be supposed that pants could be so tight as to interfere with the expansion of a man's avoirdupois, just as restrictive bindings once interfered with the growth of Chinese maidens' feet. Most of us, I suspect, would be inclined to feel that each of these points of view contains an element of truth and that, under conceivable circumstances, changes in the quantity of money could, for example, initiate changes in the price level, limit changes in prices which originated elsewhere, or result from changes in prices. If the present purpose were to describe prevailing opinions, now or in the past, rather than to differentiate between alternative conceptual positions, it would be necessary to suggest a tendency to adopt some compromise between or among the positions noted above.

⁵ J. J. Pollak and William H. White, "Effect of Income Expansion on the Quantity of Money," *International Monetary Fund Staff Papers*, August, 1955.

⁶ "Monetary Policy and the Structure of Debt," *AEA Papers and Proceedings*, May, 1954.

for some to visualize the significant problems and the elements of a solution, it may strike others as making the treatment unduly cumbersome while still leaving it short of completeness. The primary reason for extending the analysis to include other financial assets than money is that such assets also possess significant degrees of liquidity, which is so important in the study of monetary phenomena. But by the same token, even physical assets may possess liquidity. Some physical assets have liquidity characteristics about as consistent as those of many debt instruments. Under certain circumstances—notably when prices are rising—the volume of assets which acquire liquidity—temporarily, it is true, but long enough to be significant from the standpoint of monetary analysis—may become extremely large.

Broadening the focus of monetary analysis to the extent that is sometimes suggested seems to me, then, to make the analysis unwieldy while still failing to accomplish its apparent purpose. Moreover, it is by no means impossible to take other significant factors into consideration just because they are not all embraced under the same theoretical umbrella. For these reasons my personal preference would be to confine the analysis to narrower monetary relationships of the more customary type. But if I had been ingenious enough to originate one of these alternative techniques of analysis, it can only be supposed that my preference would fall otherwise.

The Stability of Monetary Relationships

It is to be noted that these later approaches to monetary analysis, even though they may have arisen in connection with the study of economic growth, apply to other problems as well. The particular observation to which I am leading up also has more general application, though I am concerned here only with its bearing on questions of economic growth. Investigations which examine relationships which have existed or may exist between money and growth are a necessary part of scholarly progress in our discipline. But investigations which seek to discover relationships so firm that they can be generalized into economic laws are doomed to disappointment. The search for some formula or set of formulas to serve as a guide to policy-makers and as a measuring stick for students of monetary development is never ending. Because of the resulting by-products the search is by no means futile; but it can never fully succeed for the simple reason that the circumstances to which monetary policy relates are too inconstant and hard to measure.

It is not merely probable but certain that each of the putative monetary relationships mentioned at the beginning has historical and other evidence to support it. The caliber of the writers whose names are

associated with these claims is sufficient guarantee that they have merit. The conclusion to be drawn is not necessarily that one has greater merit than another, though this may indeed be the case, but that each has or has had validity—at least significance—for particular times and places. Similarly, it may be suggested that even if, in the course of time, a particular relationship between money and growth came to appear to hold generally, it would still be dangerous to assume that it could be relied upon for the future, in the face of possible changes in institutions, objectives, or other factors.

Central banking in particular has more to fear than to hope for from attempts to formulate immutable economic laws or to arrive at perfect ways of doing things. (The "bills-only" policy of the Federal Reserve is a recent example of the adoption of methods which seem to many to be arbitrarily and unwisely restricted. The extent of the criticism directed against the policy by students of central banking is an indication of their opposition to such a narrowing of the freedom of central bank action.) The first requirement of a central banker, it has been said, is that he be percipient and versatile (R. S. Sayers, "Central Banking in the Light of Recent British and American Experience," *Quarterly Journal of Economics*, May, 1949, page 211). It is precisely in the light of this conception of central banking that dogmatic adherence to particular patterns of thought or policy seems inappropriate.

Not many years ago sentiment on the issue of "rules versus authority" seemed to have veered strongly toward the first of these two alternatives. While this may also seem to be the logic of recent moves and declarations by the Board of Governors with respect to free security markets, it is not so clearly the direction of current thinking among many students of central banking. To suggest a greater role for authority is not, by any manner of means, to rule out efforts to modify the economic framework in ways that may improve the operation of automatic forces. Nor is it to endorse any and all sorts of interference by the authorities. It is to say rather that the central bank must be prepared to interfere in the market but to do so wisely, which means in relation to conditions as they exist at the time. That qualification of wisdom is a thoroughly question-begging distinction, but to be able to draw a distinction between actions which are wise and those which are unwise is the very essence of the central banker's problem.

What has been said above is not to be construed as disparagement of monetary theory, though it is critical of the apotheosis of particular doctrines or dogmas. In terms of paraphrasis, it may be said of theory that there is nothing true or false but conditions make it so. Keynes made essentially this point when he remarked on the tendency for

businessmen to cling to particular theories long after they had outworn their usefulness. The chief limitation of monetary management is not inherent in monetary management itself. Rather it lies in adherence to guides and to methods which become inapplicable or inappropriate in the face of changing conditions or varying human responses.

What has been said implies doubt as to the possibility of reaching firm conclusions on the role that money has played in relation to past economic growth. There probably would, it is true, be widespread agreement that monetary influences associated, for example, with the inflation of the Civil War period and with the prolonged deflation thereafter had their effects directly on the level of output. Indirect effects may also be assumed to have taken place, since the changes in distribution of wealth and income which were one aspect of these changes in price levels can hardly have failed to have an impact on patterns of production and growth. But the precise nature of such direct and indirect effects remains a matter of conjecture. Similar observations could be offered with respect to other periods and places.

One can perhaps hypothesize that with stable prices a higher level and a more even rate of growth would have been achieved in this country than actually were attained, but any such conclusion must remain uncertain. I have always found the argument persuasive that wildcat banking may have contributed to the more rapid development of the West by providing a cheaper form of circulating medium than specie, by the stimulus to production and the effects of redistribution of incomes that may have resulted, and perhaps in still other ways. Such an argument, whether valid or not, challenges the notion that maximum growth is to be found along the lines of greatest monetary stability and of what would generally be thought of as sound monetary policies. This seems to suggest that even if, as has been said, "monetary management is the weakest part of our economic system"—which is by no means to be admitted out of hand—such weakness may not necessarily have prejudiced economic growth.

Questions of monetary relationships and their stability are involved also in much of the postwar discussion of policies to be followed in underdeveloped areas. A recurrent theme has to do with resort to monetary expansion as a means of hastening economic development in such countries.

Underdeveloped countries would seem to be subject to certain disadvantages with respect to monetary policies for economic growth which are less serious in countries which are economically more advanced, especially where the international effects of actions taken may be relatively less important. Considerable attention has been directed,

for example, to the probable repercussions on the balance of international accounts which might be expected to follow the adoption of monetary expansion as a method of financing economic development. The danger would seem to be substantial that inflationary policies would tend to discourage the import of foreign capital and the introduction of foreign skills.⁷

The relatively limited use of money in such countries suggests that forced saving through monetary expansion would be relatively unpromising (Frederic Benham, "Deficit Finance in Asia," *Lloyds Bank Review*, January, 1955, page 21). For the same reason, however, the evils of inflation would also seem to be reduced by the fact that there would be fewer long-term claims expressed in monetary terms. Of more fundamental significance is the suggestion that the Keynesian argument that an increased flow of money would be more or less matched by an increased flow of output because of utilization of unemployed resources and labor has little application to underdeveloped countries (*ibid.*, pages 21-22). These considerations with respect to monetary policy in underdeveloped areas suggest that monetary relationships may differ significantly for different countries at the same time, as well as for the same country at different times. To the problem of lack of stability in monetary relationships, therefore, must be added that of lack of uniformity in monetary relationships.

Economic Growth as an Objective of Monetary Policy

The decade before World War II, and particularly the latter half of that decade, was notable, among other things, for the emergence of full employment as a recognized objective of economic policy in general and of monetary policy in particular. The decade after World War II, and particularly the latter half of that decade, will some day, if I am not mistaken, be recognized as having witnessed the crystallization of another and perhaps equally notable objective of monetary policy; namely, economic growth. Opinions may differ as to the importance of this development. On the one hand, it will perhaps be said that the idea of economic growth was implicit in earlier discussions of central bank policy⁸ and on the other that it is not now an explicit or distinguishable objective of monetary policy.

⁷ Numerous references could be offered on these points. See, for example, *United Nations Economic Bulletin for Asia and the Far East*, January-June, 1952, and November, 1954; Henry C. Wallich, "Underdeveloped Countries and the International Monetary Mechanism," in *Money, Trade, and Economic Growth* (New York, 1951); P. D. Henderson, "Retrospect and Prospect: The Economic Survey, 1954," *Oxford Institute of Statistics Bulletin*, June, 1954, especially pp. 161-173.

⁸ E. A. Goldenweiser, in *American Monetary Policy* (New York, 1951), included "steadily expanding prosperity and well-being" among the purposes of the Federal Reserve System (p. 73). He also mentioned Franklin D. Roosevelt's statement made in 1937 that it should contribute to an "ever-rising standard of comfort" (p. 73). Such expres-

Discussions of the objectives of Federal Reserve policies in official publications and other formal statements now commonly abound in mention of economic growth. On the first page of the 1954 edition of the Federal Reserve's little book, *The Federal Reserve System, Its Purposes and Functions*, we find "orderly economic growth," "steady development of the nation's resources," and "growth of the country." In the previous editions no comparable statement appears, although "rising standard of living" and "rising level of consumption" appear in both earlier and later editions. Such expressions as "sustainable economic growth in the economy" are found frequently in the official sections of the Flanders Hearings of December, 1954, but not, so far as I have discovered, in similar parts of the Douglas documents. In the Patman materials there is sporadic reference to the concept. A recent publication of the Department of Monetary Policy of the American Bankers Association states that "the general aim of monetary policy is to promote stable economic growth," and makes no specific reference whatever to other familiar objectives such as price stability and full employment (E. Sherman Adams, *Monetary Policy and the Present Credit Situation*, 1955, page 1).

Typical of the attention now devoted to economic growth as an objective of monetary policy is the *Economic Report of the President* for January, 1955. An entire section is there devoted to the topic, "Paths of Economic Growth." In this section and elsewhere consideration is given to the role of monetary policy in promoting economic growth, though the discussion of monetary policy is not sharply differentiated from that of fiscal policy. It seems to be suggested that monetary policy, by itself or in conjunction with fiscal policy, should undertake to do the following things: (1) "Restrain and offset any tendencies that may develop toward recession or inflation." (2) Increase "the supply of money and credit, but not on a scale that invites inflation in the present and possible depression in the future." (3) Stimulate "constructive economic attitudes and behavior on the part of consumers and businessmen." (4) Foster "the expectation of improving economic conditions, reasonably stable prices. . . ." (Pages 6-7 and *passim*.)

It is hardly possible to object to the general tenor of these statements, but it is almost as difficult to discover in them much more than polite

sions can, of course, be interpreted in such a way as to cover economic growth, but so also can such phrases as "accommodating commerce and agriculture" or the Federal Reserve Act's "for other purposes." By the same token, such expressions can be stretched to include full employment as an objective. It seems clear from the context in which such earlier statements appear that the writer or speaker did not have in his mind what modern users of the expressions "economic growth" and "full employment" have in theirs.

platitudes. It will be noted that they appear to embody a relatively orthodox quantity theory position on the relation of money to prices (*supra*). Furthermore, the views expressed, even though they are in a section on economic growth, seem to be more immediately directed toward stabilization or full employment.

The idea of economic growth is clearly implicit, of course, in any discerning use of the expression "full employment." It may be noted that a sophisticated use of the term "stabilization" would likewise seem to presume the recognition of full employment as the point at which stability is to be maintained. Even though it may be possible to read the concept into earlier statements relating to stabilization, it can hardly be denied that the specific recognition of, and emphasis upon, full employment as a monetary objective represented an important step in the development of monetary policy. What is here suggested is that a similarly clear-cut recognition of economic growth as a monetary objective is currently taking place and is likewise to be regarded as a significant step in the development of monetary policy.

The application of this relatively new emphasis on economic growth to the interpretation of central bank policies or, more broadly, to interpretation of economic conditions in general, was clearly shown in connection with the events of 1954-55. The fact that the record 1953 levels of output were nearly maintained and later moderately exceeded was hailed in various quarters as a noteworthy achievement and as clear demonstration of the wisdom of policies, monetary and nonmonetary, then in force. But certain critics insisted that the mere maintenance of past levels was by no means sufficient. In setting standards to be used as a target or as a measure of accomplishment, allowance must be made, it was said, for the increasing economic potential of a country. Stabilization was not enough unless it was understood to mean stability not at an absolute level of economic activity but at levels related to economic potentials existing at different periods. To stabilize output at any attained absolute level of production would mean, as population and invested capital continued to grow, a steadily mounting volume of unemployment and idle or underutilized capacity.

The difference between these two points of view is clearly that the second reflected a strong emphasis on economic growth as an element to be considered in evaluating policy while the first did not. The same difference accounts for the fact that certain individuals were advocating vigorous use of expansionist measures in 1954 and 1955 at times when the Federal Reserve was following more nearly neutral or even restrictive policies. Messrs. Black, Hansen, Keyserling, and Klein were among those who urged, before Congressional committees and elsewhere, that the proper guide to policy was not the absolute level of

output which prevailed in 1953 but a figure that would bear the same relation to working force, capacity, etc., in 1954 and 1955 as the output in 1953 did to working force and capacity in 1953.

The position taken by advocates of expansion in holding that growth in capacity should be taken into consideration in interpreting current levels of output was logically impregnable and the position taken by the financial press generally that output could appropriately be related to past physical levels of output was weak in the extreme. Where the arguments of the expansionists might more appropriately have been attacked, perhaps, was on the ground that the relative level of output to capacity which had been reached in 1953 was too high to serve as the goal of monetary policy; that is, that it represented a situation of over-employment rather than full employment. Alternatively, the whole concept of basing central bank policy on anything as mechanical as any particular relationship of output to capacity, whether previously attained or not, might have been disputed.

Problems of Application

In evaluating the significance of treating economic growth as an objective of central bank policy, it is useful to distinguish three different ways in which economic growth may be related to full employment as a monetary objective. (Similar comparisons could be made with other objectives of central bank policy.) In the first place, it may be agreed that in any policy directed toward the attainment of full employment due allowance must be made for increases in a country's capacity to produce. The full employment objective necessarily assumes full employment of expanded capacity to produce, no less than it did full employment of the former unexpanded capacity to produce. Economic growth must be included when speaking of full employment, and the full employment target must be adjusted in accordance with any economic growth that occurs.

The full employment objective relates, however, only to the full utilization of the country's capacity to produce as it exists at any given moment of time. The degree of economic growth implicit in full employment is taken as given. To the extent that growth in a country's capacity to produce occurs, it is part of a full employment policy to accommodate its standard of physical achievement to that growth. But it is not part of a full employment policy per se to concern itself with influencing growth other than as a by-product of the attainment of full employment at any given time.

A complication becomes immediately apparent and a second stage in the analysis is reached when it is recognized that the economic growth of which a country is capable—and which it may perhaps desire—is

different from that which reliance upon the full employment objective alone would produce. The economic growth objective becomes distinguishable from the full employment objective and it follows that policies called for by the growth objective may be different from those called for by the employment objective. Full employment is essentially a short-run concept. It is conceivable that, by taking a somewhat longer view and supplementing full employment policies accordingly, full employment over the longer term may be achieved at a somewhat higher average level of output than would be possible on the basis of immediate full employment considerations only. While pursuit of the full employment objective may at the same time contribute to the growth objective, it may not do so as fully as some other policies would do. In that case supplementary policies or alternative full employment policies would be required if the growth objective were to be attained along with the full employment objective. For example, consideration for the growth objective would presumably favor measures for promoting investment over those for promoting consumption as means of supporting aggregate spending at the full employment level. On these assumptions the growth objective would not be in conflict with the full employment objective. It would simply call for alternative means of pursuing full employment or for supplementary policies beyond what the full employment objective alone would require.

A third possibility is that the economic growth objective may actually be in conflict with the full employment objective. This would be the situation if the policies called for were not merely supplementary or alternative, as in the case just considered, but were such as to interfere with the attainment of full employment. It is frequently maintained, for example, that full employment policies are likely to lead to inflation. Assuming that this contention is valid and also that inflation is prejudicial to healthy economic growth, it follows that regard for the growth objective could directly conflict with the full employment objective. The problem of conflict on this score would probably not seem very serious under conditions of aggravated unemployment such as existed in the thirties. At such a time policies for promoting full employment would presumably be regarded as also likely to contribute adequately to the attainment of growth potentials. It is when expenditure is pressing on existing capacity, as was the case much of the time after World War II, that the inflationary threat and consequently the danger of conflict between the full employment and growth objectives would seem to be most real.

Other questions arise entirely apart from those which relate to the particular methods employed in carrying out the respective objectives. Can we be sure, for example, that full employment at all times provides

the environment which is most favorable to long-run economic growth? Is it not possible that under some circumstances the existence of idle resources may provide a stimulus to invention and the devising of improved methods? May continuing full employment contribute to a lessening of incentive and the relaxation of efforts on the part of workers, employers, and others which is prejudicial to capital accumulation and long-run growth? That such was the situation in England in the decade of the fifties was repeatedly intimated by the *Economist* of London. To suggest that this possibility exists is not to deny that a condition of aggravated unemployment would be even more prejudicial to orderly economic growth than a condition of overemployment.

As long as we encounter uncertainties such as these it is not unreasonable to suggest that the full employment objective and the objective of economic growth may be expected at times to be in direct conflict with one another. Surely such a conflict is to be anticipated; it is too much to hope that the long-term considerations which underlie economic growth will always coincide with the shorter term considerations underlying full employment.

The threefold classification presented above of the relation of the economic growth objective to the full employment objective is designed to bring into focus some of the issues which are presented by the emergence of economic growth as an objective of monetary policy. It may be observed that no particular problem is raised in connection with the first case, where growth is thought of as one of the factors of change that must be taken into consideration in determining what constitutes full employment. It is nonetheless pertinent to the intelligent interpretation of policies to be followed and to the measurement of their achievements.

More serious issues are raised in the other two cases where it is assumed that the policies which are best from the standpoint of full employment may not be identical with those which are best from the standpoint of economic growth. The economic growth objective looks toward optimizing the country's capacity to produce. (There seems to be a need here for the verb "optimize" but the dictionary fails to authorize use of such a word with the meaning desired.) The full employment objective looks toward optimizing the current utilization of that capacity. In other words, ideal output under the full employment objective is the country's economic potential at the prevailing level of technology; under the economic growth objective it is the country's economic potential at a progressive level of technology and specifically at a level which progresses in an ideal manner.* The problem which

*This is not offered as a definition of the economic growth objective. The expansion of output over previous output, which I have in mind throughout this paper, is a compound of various changes including population, technology, and capital accumulation. For

results from the contrast between the two objectives is simply that pursuit of the full employment aim may conceivably fail to produce the ideal degree of economic growth or may even interfere directly with its attainment.

Economic Growth as a Manageable Central Bank Objective

Economic growth as a monetary objective involves more than just the question of its desirability in relation to other possible goals of policy, whether as an alternative to, or as something to be combined with, other recognized objectives. There is the further question of the manner in which it fits into the framework of central bank policy as presently administered. Analysis of this question involves consideration of both economic growth as a monetary objective and central banks as administrators of monetary policy.

Economic growth is clearly a much more difficult objective to administer than some of the others. The target toward which it points is more indefinite even than that of full employment. The ideal growth potential is necessarily long run but there is no way of determining how long run. Beyond that is the fact that it is subject to alteration by every technological advance or other environmental change—social, economic, and political. It is not only a moving target; it is a target that moves in an inevitably unpredictable manner.

The great advantage of convertibility with gold or stability of exchange rates as a monetary objective was its specific character. This is doubtless one reason why convertibility with gold and exchange rate stability retained their hold on central bankers for so long. Price level stability is likewise relatively easy to measure. Full employment is much less clear cut but nevertheless affords criteria, such as the number of unemployed workers, which are considerably more tangible than those available for judging policies for attaining ideal rates of economic growth. Such standards of economic growth as suggest themselves are likely to involve average rates of growth achieved in the past; they necessarily incorporate implicit projections for the future which could easily prove to be too high or too low.

The formula adopted by the Board of Governors of "sustainable economic growth in the economy" (Flanders Hearings, page 6) rules out economic growth that might seem to be desirable even though not sustained. (It is not certain that stability is as conducive to maximum economic growth as it may at first glance appear to be. A feeling of greater security resulting from increased stability might tend to dis-

an analysis of the concept of economic growth, which also raises the question of possible deviations between economic growth and the full employment objective, see R. A. Harrod, *Toward a Dynamic Economics* (London, 1948), especially pp. 76-100.

courage saving, certainly saving that was designed to provide for the proverbial rainy day. Any net impairment of saving would presumably limit the accumulation of capital on which growth may be supposed largely to depend. It is even conceivable that increased stability would reduce the prospect for bonanza gains and thereby weaken some of the incentives to invest.) Apparently the idea of sustainable growth is intended to suggest that a pace so rapid as to be inflationary might be inconsistent with maximum growth over a longer period of time. Undue concern with short-run considerations is primarily responsible for the alleged tendency of full employment policies to produce a net inflationary effect. Because of its relatively long-range emphasis, the economic growth objective should not be quite as likely to foster inflationary methods and might even tend to counteract the alleged inflationary bias of full employment policies. As in the case of full employment, the possible inflationary tendencies would lie not in the policies themselves but in setting a target for those policies which was too high in the light of existing capacity and incentives. (It may be observed once more that those individuals who have been identified with generally expansionist full employment policies are also among those who have stressed economic growth as a significant monetary objective.)

A final point to be raised is whether central bankers are temperamentally suited to administer economic growth as a monetary objective. It is the nature of bankers, including central bankers, to be conservative rather than adventurous. But economic growth is essentially an adventurous conception. Stability of gold, exchange rates, and price levels are conservative ideas. As objectives they were an anchor to which to cling while economic growth is a gleam to be followed. They offered specific standards by which the success of policies could be measured—standards such as are entirely lacking in the case of economic growth. One can imagine a Council of Economic Advisers—especially as it was constituted under the Democratic Administration—accepting such an assignment and running with it. It is hard to conceive of any Board of Governors—even that headed by Eccles—as doing so.

Central bankers, at least in this country, are subject to political pressure and live in fear of it. Circumspection in refraining from doing those things that might invite public and, thereby, Congressional criticism can be rationalized by the thought that an attempt to do more than a safe minimum might lead to their power even to do that minimum being taken from them. A large part of the preference for general rather than selective controls is derived from the fact that they operate indirectly, and the central bank is somewhat screened from the sort of criticism to which use of selective controls exposes them. It

is not modesty but the instinct of self-preservation that causes central bankers not to want to become too large or to appear to possess too much power.

This is one reason, also, why central bankers prefer to stick to simple, easily understood methods and criteria. It is why they find it easier to take their stand on gold than on free currencies, on price stabilization than on full employment. It is why the quest for some simple rule of thumb such as the real bills doctrine, the Palmer rule, or the bills-only policy proves never ending.

Economic growth as an objective of monetary policy in no way fits into this comfortable, mechanical scheme of things. For this reason, if for no other, it is certain that it will not assume the place of paramount importance in central bank policy that exchange rates, price levels, or even full employment has occupied at different times. But economic growth is far too significant and logically compelling to be set aside. We may expect it to appear faithfully from here on in stock discussions of monetary policy, but for the present it must be content to assume the role of a statement of generalized aspirations—a somewhat platitudinous expression of good intentions rather than a concrete determinant of central banking policies.

DISCUSSION

EDWARD S. SHAW: Growth of any kind has its negative as well as its positive aspects. There is debris to be swept away in any growth process. Professor Whittlesey is putting the broom to debris that hampers growth in thought and practice about the role of money in economic development. He would sweep into a corner somewhere the dispute as to whether money is active, permissive, or passive vis-à-vis the real determinants of development. He has no more patience with "mechanical" formulae for policy or with economic generalizations that express succinctly the sequences of growth. His broom hesitates a little over central bankers as a breed, but it will not hesitate for long if they neglect to mend their ways, paying a little less heed to political needling and trite rules of operation and exhibiting a little more the adventurous spirit of the wildcatter. The broom hesitates not a moment over economists who amuse or even instruct themselves, but no one else, by innovating analytical gadgetry and testing it on growth problems.

The debris disposed of, Professor Whittlesey turns to the positive aspect of growth in monetary thought and management. His first specification calls for central bankers who combine wisdom, percipience, and versatility: wisdom to distrust immutable economic laws; percipience, undimmed by theory, into changing conditions and varying human responses; versatility in trying one thing after another until something works. They should beware of projecting experience, save from the inflationary episode of the Civil War, since mutations upon economic relationships are infinitely varied.

Professor Whittlesey urges, second, that protestations of central bankers notwithstanding, economic growth should be elevated to the top pedestal of policy objectives, taking priority if any issue of conflict arises over price stabilization, say, or full employment. No issue of conflict may arise, but then again it may, and the wise, percipient, versatile, and adventurous central banker will be ready with a nonmechanical solution, pertinent to the distinctive complexities of the moment and purged of theoretical taint.

Professor Whittlesey's view on the role of money in economic growth, as I grasp it, is in brief: the role is unknown, unknowable, and can be constructive only under off-the-cuff management by central bankers whose like we have yet to see. This resignation of our problem to an improbable Board of Governors creates a difficult situation—at least for panelists here who may be disposed to think about money theoretically.

I am somewhat less dour than Professor Whittlesey over the outcome of economists' explorations into the monetary conditions or implications or attributes of growth. On the other hand, I am profoundly pessimistic over the likelihood that inspiration and revelation on the part of money managers will point out the optimal path of monetary development.

There seem to be two contributions that a monetary system can make to development in real terms. It can, and must, provide an efficient payments mechanism. This is a modest goal, on the order of good housekeeping, that is

nearly won. The more difficult responsibility of a monetary system is to guide, qualitatively and quantitatively, the flow of funds to economic units whose aggressive spending is stimulating real output and the flow of financial assets to economic units whose restraint in spending frees resources for real investment.

If the monetary system supplies or tries to supply an excessive share of the rising stock of financial assets, real resources may be diverted to uses compatible only with low real rates of growth. If the monetary system supplies a deficient share of the rising stock of financial assets, resources may be underemployed—another use that is compatible only with low rates of real growth. If the monetary system denies funds to venturesome entrepreneurship, growth is damped. If it is liberal to excess in financing of limited sectors among borrowers, its own solvency can be jeopardized and resource uses perverted.

In the performance of its role, the monetary system is plagued by two difficulties among others. First, it is only part—and a relatively retrogressive part at that—of the entire financial mechanism that processes flows of funds and securities. Real growth is not contingent upon monetary growth, in the narrow sense of growth in the banking system, save in the limiting case where scarcity of money balances would induce inefficient techniques of money payments. In all other cases, substitutes for money and monetary institutions can assure the financial development without which real growth would be handicapped.

Second, so little study has been devoted to the growth process that we are not yet familiar with patterns of disorder which indicate that financial development is impeding real progress. As Professor Whittlesey suggests, price-level changes are not a dependable alarm, nor is short-lived unemployment on a modest scale. I do not think that warnings of financial distortion that merit respect will emerge from further manipulation of the traditional quantity equation or of such short-period models as the Keynesian.

As always, monetary theorists are disagreeing. Professor Whittlesey wants monetary theorists to attend strictly to their money business, and he prefers that history be left to the historians. My remarks suggest that the boundaries of monetary analysis should be extended to include other institutions than the banks and other assets than money. They suggest, too, that in the rich flow of historical data that is being supplied by the Federal Reserve, the National Bureau of Economic Research, Professor Kuznets, Dr. Goldsmith, and others, there may be useful guides to repetitive economic behavior.

PAUL W. MCCracken: If Ricardo and Tooke were sitting in this session, they might properly conclude that there is considerable continuity in discussions about monetary policy. Ricardo would undoubtedly identify himself with—indeed perhaps claim considerable paternity for—the two “orthodox” positions mentioned at the outset by Professor Whittlesey, while the third or “unorthodox” view would have a decidedly familiar sound to Tooke. And Wicksell would no doubt wonder why his “positive solution” had not resolved these issues long since.

My comments will, however, be concerned with two other questions raised by Professor Whittlesey in his very perceptive paper. First, what should be included within the ambit of monetary analysis? Second, what are the implications for monetary policy of adding economic growth to its list of objectives?

The first question has to do with whether the ambit of monetary analysis should be expanded in order to include such phenomena as near-money assets and financial intermediaries. Some of you may, of course, have phrased an alternative question: Who has been leaving it out? Certainly not Keynes, who pointed out in the *General Theory* that in the absence of "a highly organized market for dealing with debts . . . liquidity-preference due to the precautionary motive would be greatly increased . . ." (page 170). And as Professor Hansen points out, Marshall's theory originally included an asset-demand for money as well as a transactions-demand—the "diversification" and "income" demands in the Gurley-Shaw model.

There are, nevertheless, two reasons for thinking that these extensions have real logical merit. First, the theoretical emphasis on the relationship between savings and investment tends to slide over the question as to whether the institutions constituting the capital market are performing in such a way that savings get to the deficit-spenders. If there are impediments, national income will change even though in the *ex ante* sense savings and investment are equal. This point has too frequently been ignored, and it is good to have this aspect of the problem brought explicitly into the picture.

Second, an analysis of the impact of monetary changes on business conditions must be extended along the Gurley-Shaw lines. Liquidity changes have more dimensions than the size of the money supply alone. Availability of credit, near-money assets, negative liquidity-ness arising out of debts, and varying degrees of liquidity-ness or money-ness of the same assets at different times—all of these phenomena must be brought into the picture. The excellent analytical work by the General Motors business research staff clearly underlines the usefulness of this broader approach.

The final question with which Professor Whittlesey was concerned in his paper is more immediately germane to this series of meetings: Do economic growth and shorter-run economic stability (or full employment) seriously collide as objectives of monetary policy? Some fairly persuasive arguments can be arrayed on the affirmative side of this question.

For one thing, if they are not in conflict, there are at least important differences in the ease with which our performance can be defined and calibrated. Most estimates of the amount of employment needed for full employment would fall within a range 2 or 3 per cent from the lowest to the highest. And we can easily calibrate our success in achieving price-level stability by observing the extent to which conventional measures of the price level do or do not diverge from a horizontal trend.

But how can we know if monetary policy is succeeding in its economic growth objective? To answer this question we must know what the "right" rate of economic growth is. What is the parallel here to the horizontal trend for the price level? By definition, not horizontality. Is it then 2 per cent or 3 or 4? What measure can the monetary authorities nail to the masthead?

Moreover, the pursuit of the full employment objective may itself conflict with economic growth, as Professor Whittlesey points out. The postwar period provides ample case illustrations of where weakening markets prompted firms to come out with a new product line or to undertake a major cost-reducing, re-equipment program.

There is another dimension to this matter which is even more fundamental. The position that there is an inherent, fundamental incompatibility between economic stability and economic development (or progress or growth) is associated with distinguished names in theoretical literature. Schumpeter and Knight immediately come to mind. In spite of the contemporary view that the old business cycle is breaking up, there is unquestionably still some point to the thesis that the processes which give rise to growth tend to have destabilizing side effects. If, for example, either Bank of the United States had survived to have become a full-fledged central bank and had been preoccupied with assuring stable, sound, and orderly monetary and economic conditions, the resulting economic growth of the nation could well have been less than what actually occurred. The reason is simple. Innovation, new products, new ways of producing things are never in prospect (and often in retrospect) sure things and could easily have been a casualty of central bank policy. If the tradition of selective credit controls had been more highly developed, the problem would have been more acute, since innovations in the field of credit often look particularly "unsound." This is undoubtedly what Professor Whittlesey had in mind in his allusion to the constructive social dividends from wildcat banking. Another illustration was the tendency which long persisted to regard the great growth of consumer and personal lending as of questionable respectability and virtue—although some of our most admired industries (e.g., the auto industry) could never have gotten off the ground without the growth of consumer credit, and the delinquency experience has been phenomenally good.

While there is much merit to this line of analysis, it is doubtful if in practice the conflict between economic growth and stability as objectives of central bank policy need be too vexatious. For one thing, this is simply a variant of the fundamental economic problem posed by multiple objectives. We want many things, but having some means not having others. The problem becomes one, therefore, of achieving the right balance. Difficult as the central bankers may find the problem to be, there may be at least some comfort in remembering that the problem is not a new one.

Moreover, within pretty broad limits a monetary policy which maintains a reasonable degree of economic and price-level stability will also produce a desirable environment for economic growth. These two objectives are, in short, more apt to complement each other than to collide with each other.

There is an institutional problem here which has received surprisingly little attention. If the many long-run economic projections are even roughly correct, we shall need within the next decade an increase in bank deposits and the money supply of perhaps 100 billion dollars. What is to be the basis for this monetary expansion?

It might arise out of a corresponding expansion of bank loans. But we now have a situation where the commercial banks' holdings of government se-

curities are almost as large as their loan portfolio. Therefore, if all of the increase in the money supply is to be based on an expansion of bank loans, short-term debt must grow considerably more rapidly than national income. Will individuals be willing for the long pull to have their debts thus grow more rapidly than incomes or sales?

The debt-to-income ratio would not need to grow, of course, if bank holdings of government securities were to grow parallel with the growth in the money supply. But this would almost certainly mean a long-run growth in the public debt—with an unbalanced budget as the normal thing. This is the implication of any statement that the ratio of private debts to income ought not to grow. Yet those who insist that this ratio ought not to grow are also in general those quite unsympathetic to a policy of normally unbalanced budgets.

What all of this means, it seems to me, is that monetary and credit policy are moving into an era where the implementation of policy will become more difficult and the results of policy will be more important.

HOWARD S. ELLIS: Should monetary policy take as one of its major objectives the promotion of economic growth? This is the main question to which Professor Whittlesey has addressed his paper; and, as I understand it, his answer is definitely yes. Professor Whittlesey says that the role of money with regard to progress might be passive, permissive, or active, though he does not explicitly state which view he holds. But if monetary policy were merely passive or permissive, it would be difficult to reconcile this with assigning to it, as one of its major objectives, the promotion of economic progress. A belief that the quantity of money is merely passive or permissive with regard to the behavior of prices or the degree of employment is surely not what underlies the dual objectives, commonly assigned today to monetary policy, of achieving stable prices and reasonably full employment. Does money play a similarly active role with respect to economic growth and is there a third and co-ordinate objective of monetary policy? This, I believe, is open to serious doubt.

The moving forces which account for the economic progress of the individual are, generally speaking, the forces which account for the economic growth of the society. Basically it comes back in both cases to the economic motives: the desire for income and wealth, security, and other enjoyments dependent on material means. To these ends the individual works, acquires technical or professional training, saves, ventures capital, invents, changes occupations, migrates, etc. Where these instincts to improve his lot are weak or lacking, the individual does not advance nor does the society. This in no way denies social values or social ends, nor does it deny that government activities may accelerate growth. But if a drive toward national development, security, aggression, and the like does not evoke these individual motivations, economic growth usually does not occur.

Theories of economic development have seized upon these facts and have discovered in certain factors proceeding from individual motivation the prime movers of progress: the discovery and application of new techniques and products; entrepreneurship and skills; capital formation; and, in certain

cases, population increases, indigenous or by migration. In these great bearers of progress, governments may play a considerable role. The monetary mechanism, if it functions properly, may transmit the basic economic motives and well-conceived interventions of the state to economic development; it does not itself engender these impulses.

Monetary policy makes its maximum contribution to economic growth and to the balance of that growth if it succeeds in keeping prices reasonably constant and employment reasonably full. There have been, of course, a few economists who have thought that inflation and forced saving may accelerate the pace of progress. I do not understand that Professor Whittlesey is prepared to recommend wildcat banking as an objective of monetary policy for the United States today or for the underdeveloped areas; his reference appears to be only a momentary bit of naughtiness. I will pause only to remark that even "gently rising prices," occurring despite efforts of the monetary authorities to the contrary, have set afoot such evils as to cause the author of this benign phrase to revise it to "creeping inflation," with its suggestion of malignancy. And certainly the announcement of a policy of continuous if small inflation, just as a fixed policy of full employment without reference to price behavior, would set loose forces to convert it into rapid inflation.

In Western industrial societies under conditions of depression and cyclically underused plant capacity, monetary expansion can be an active cause of growth of output. This active role of money is already embraced under the full employment criterion. The growth of output under full employment requires a parallel increase of money; and this increase is already embraced under the objective of constant, not falling, prices. In underdeveloped areas lacking capital equipment, the expansive force of money is largely non-existent. As Joan Robinson says, Keynesian economics does not apply. Again no further criteria are necessary or indeed possible for monetary policy than price stability and keeping the all-too-scarce plant capacity from giving rise to inflation. Full employment of the frequently redundant labor force cannot be accomplished by monetary expansion, since capital capacity imposes a prior limit.

Indeed, the besetting danger of the monetary institution in underdeveloped areas is inflation. The political atmosphere, the tax systems, the balance-of-payments situation, the aims of autarchy and rapidity of development, the habits of saving (or rather their absence), the long-established and quite rational mistrust of domestic currencies, the absence of markets for government securities, the "demonstration effect" of foreign standards of living—all of these produce a strongly inflationary bias and inflation has particularly pernicious effects on development, upon which I cannot now dwell.

In these circumstances it is essential that economic growth *not* be made an injunction upon the monetary authority. The achievable rate of growth needs to be tested by some part-way objective criterion, such as price stability, and some half-way objective criterion, such as full employment. Wildcat banking would not help.

It is not otherwise in industrial or developed economies, though the

causes of inflation are somewhat different. Here we are imperilled—and all economic systems relying upon economic governance by the price system are imperilled—by creeping or log-rolling inflation resulting from economic power blocs. The danger is sufficiently great as to have caused Schumpeter to regard it as one of the factors bringing about the end of capitalist systems.

Monetary policy, then, we may safely assume, should aim at the maximum of employment consistent with price stability. If economic progress were to be added to these objectives, what specific meaning could be given it? Professor Whittlesey says:

Economic growth is clearly a much more difficult objective to administer than some of the others. The target toward which it points is more indefinite even than that of full employment. The ideal growth potential is necessarily long run but there is no way of determining how long run. [Or, I may add, how much or how fast.] Beyond that is the fact that it is subject to alteration by every technological advance or other environmental change—social, economic, and political. It is not only a moving target; it is a target that moves in an inevitably unpredictable manner.

What these sage words of Professor Whittlesey mean in fact is that there is no practical way of interpreting the objective of balanced economic growth to the monetary authority. It would be comparable to an injunction upon the Federal Reserve Board to conduct credit operations so as to maximize the economic welfare of the United States.

Governments do, of course, intervene in the economic process to quicken the pace of progress—sometimes successfully. This intervention might extend into the specific uses of credit and all manner of direct controls over saving and investment. But if these controls were allowed a theoretically co-ordinate place with full employment and price-level stability, it is doubtful whether monetary policy would any longer be recognizable. It would lose its meaning and *raison d'être* as a general nondiscriminating regulator of economic activity. If it is not to fall victim to the great maladies of contemporary capitalism—inflation and direct controls, each intensifying the other—monetary policy must reject economic growth as an objective. Economic growth is necessary to economic health, and some government policies are necessary to economic growth. But economic growth, even balanced economic growth, as an objective of monetary policy, is extraneous and potentially pernicious.

IRA O. SCOTT: Professor Whittlesey begins by distinguishing three positions with respect to the relationship between the quantity of money and the rate of economic growth. According to the first view, an increase in the quantity of money is a sufficient condition for economic growth. According to the second position, an increase in the quantity of money is a necessary but not a sufficient condition for economic growth. Finally, there are those who hold to the view that the money supply adapts automatically to the growth process. With reference to this classification, I wish only to note that, while the first and second positions differ in their judgments concerning causality, they both imply monetary management. The third view, by contrast, implies the negation of monetary policy: a perfectly elastic monetary supply.

Professor Whittlesey next considers the question of including in his analysis liquid assets other than money strictly defined and decides it would be

undesirable to do so. But as demonstrated by Professors Gurley and Shaw, the role of money in the growth process depends upon the accumulation of assets.

Visualize, if you will, a model of the economy in which there is a continuing dichotomy of surplus- and deficit-spending units. The expenditures of the deficit-spending units exceed their incomes by the increment to their outstanding debt. The amount of outstanding debt also enters their spending function along with the usual variables: their incomes and the interest rate on private debt.

The expenditures of the surplus-spending units fall short of their incomes by the amount of the surplus. This surplus depends upon income and (ignoring real assets) takes the form of either newly acquired private debt or money (noninterest-bearing government debt). In addition to income and the interest rate, the amount of the surplus and debt holdings enter the demand-for-money function. For there to be equilibrium with respect to the interest rate, income, and the amount of debt, the demand for debt must equal its supply. Similarly, the demand for money must equal its supply, the latter being determined exogenously.

Suppose values for the variables can be found that will satisfy these equilibrium conditions. If there is accumulation of assets by surplus units, there is an increase in the demand for money. Given income, this occurs for two reasons. First, increased holdings of debt acquired by surplus-spending units will increase the diversification demand for money. Second, increased wealth will provide a greater capacity for holding speculative balances. If the indicated increase in the money supply is not forthcoming, the interest rate will rise and dampen the expenditures of deficit units.

Consider next a model in which government securities (interest-bearing government debt) are also available as an outlet for surpluses. Holdings of government securities and their interest rate will affect the quantity of money demanded. The conditions that the demand for government securities equals their supply, that their interest rate depends upon their supply, and that their supply be given, complete this second model.

Now investors will no longer diversify into cash. Government securities, free from credit risk, will satisfy diversification needs. The increase in the demand for speculative balances associated with the increase in wealth will remain, however, with similar implications. Failure to satisfy the increased demand for money will again lead to a rise in the rate of interest on private debt and a slackening in spending.

This model may be expanded further to include financial intermediaries. The issuance and acquisition of debt by these institutions may be treated in a manner corresponding to that accorded the introduction of government securities. Diversification needs may now be satisfied by federally guaranteed savings deposits.

Thus it is seen that the expansion in the supply of government securities decreases the relative importance of money in the growth process. The development of financial intermediaries has a similar effect upon government securities. The amount of additional money required in order to let income

increase at the desired rate depends upon the increased demand for speculative balances associated with the accumulation of assets as well as the increase in transactions and precautionary holdings required by growing income. The demand for government securities will be bolstered by individual and intermediary needs not conveniently satisfied by federally guaranteed savings deposits.

In each of these models, the willingness to acquire debt on the part of surplus units may affect the behavior of deficit-spending units through changes in the interest rate. There may also be a change in spending behavior as a result of the accumulation of indebtedness. The accumulation of capital goods compensates for the burden of debt incurred by the deficit financing of investment outlays. An inherent restraining effect may appear, however, should the rate of increase in dividend and interest payments exceed the rate of increase in income. In the case of consumption expenditures—the case of “deadweight” debt—the effect of the accumulation of indebtedness may readily be ascertained. Assume debt-financed consumer outlays to be a positive function of the ratio of income to outstanding indebtedness. Assume also that income is some positive function of the increment to outstanding indebtedness. Then debt-financed consumption expenditures will grow so long as the stock of debt grows at an increasing rate.

Before passing to my concluding comment, I wish to note that this analysis, like most so-called “growth” analysis, deals only with components of the demand for goods and services. Economic growth implies a growth in real income. The question whether the growth in demand will be fulfilled by the fruits of greater production can be answered only by reference to the supply side.

My final comment concerns economic growth as an objective of monetary policy. Professor Whittlesey applauds the currently fashionable emphasis upon economic growth. But what does it really mean to give explicit recognition to this objective? In the first place, what specific rate of economic growth is to be chosen? The policy objective of economic stability provides a workable criterion for choosing the particular rate of growth; namely, that increment to the stock of capital which absorbs net saving out of full employment income. In the second place, the limited reliability of long-range projections forces the policy-maker to “fly by the seat of his pants.” This plus the fact that short-run considerations receive first priority in the political arena also cast doubt upon the usefulness of the growth objective. Perhaps Keynes’s dictum that in the long run we are all dead, should be amended to read that if we take care of the short run, the long run will take care of itself.

ECONOMIC GROWTH VII. THE SHORTENING WORK WEEK AS A COMPONENT OF ECONOMIC GROWTH

THE ALTERNATIVES

By CHARLES D. STEWART

United States Department of Labor

If growth is defined to include all of the components of economic progress, the increased leisure accompanying the general reduction of the work week ranks high as a component of the level of living which has been achieved through economic progress in the last half century in this country. Leisure is a characteristic feature of the economic growth we have achieved.

The decrease in working time represents a substitution of leisure for the increment to the level of living that alternatively would have been obtainable in the form of additional goods and services. Its economic value can be approximated by the goods and services which have been sacrificed for leisure. This, however, is only a crude approximation. On the production side, the efficiency of labor has been enhanced by improvements in physical health, reduction of fatigue, increased opportunities for training, etc. To the degree that leisure has taken the form of postponed labor force entry and better educational training, the efficiency of labor is also higher than what it would be otherwise. On the consumption side, increased leisure has been a contributing factor to the pressures which expand the standard of living and thus the level of living in terms of consumption of goods and services.

The history of the movement for the eight-hour day and shorter hours makes it clear that the demand for shorter hours was rooted in a deliberate preference for some substitution of leisure for additional goods and services. Working hours were too long and work was too arduous. The standard of living to which workers aspired included less work and more goods and services. No reduction in the latter was desired but future increments presumably were to be sacrificed. The choice was covered over by the realities of wage bargaining. Then as now, bargaining sometimes took the form of demands for the same weekly or daily pay for shorter hours: in effect a wage-rate increase, which may have appeared more readily obtainable on this basis.

The demand for shorter hours was commonly influenced by fears of unemployment, technological and otherwise, and considerations of bargaining power. It is not easy to disentangle the drive for shorter hours from other factors or to determine to what degree bargaining for

shorter hours and higher wage rates was predicated on views as to the possibility of increasing labor's share of national output. It is difficult to know to what degree there was the same belief in the certainty of a constantly rising real income via economic progress and thus a conscious formulation, as now, on the part of labor, that shortening of hours represents one way of taking part of the social gain in real output without loss of any part of present levels of consumption.

In the present paper, the effort is made to quantify the implications of a 30-hour week for the structure of output and expenditures in the United States in the next fifteen years. This is attempted by the pro-

TABLE 1
ILLUSTRATIVE SUMMARY OF PROJECTIONS

Item	1954	1960	1965	1970
Population and Employment (in Millions)				
Population	162.4	177.4	189.9	204.2
Labor force	67.8	72.7	78.0	84.4
Civilian employment	61.2	67.6	72.7	79.0
Private employment	55.6	60.7	64.7	69.6
The 37-Hour Model (Model A) (1954 Prices)				
Gross national product (in billions)	360.5	468.0	561.0	676.0
Average weekly hours in private employment	40.0*	38.5	37.6	36.9
Output per man-hour in private employment	\$2.93	\$3.55	\$4.11	\$4.72
Gross national product per capita	\$2,220	\$2,640	\$2,960	\$3,310
The 30-Hour Model (Model B) (1954 Prices)				
Gross national product (in billions)	360.5	445.0	504.0	567.0
Average weekly hours in private employment	40.0*	36.8	34.7	31.0
Output per man-hour in private employment	\$2.93	\$3.53	\$4.08	\$4.68
Gross national product per capita	\$2,220	\$2,510	\$2,655	\$2,777

* Adjusted for projections; actual, 38.7.

jection of output and expenditures by general categories for 1960, 1965, and 1970 using basic and alternative models in terms of constant 1954 dollars. The results are summarized briefly in Table 1.

The Basic Models

The "37-Hour" Model. Model A serves the purpose of providing a measure of the output potential of the American economy in the absence of a marked reduction in the work week. The 37-hour model is intended to represent a reasonable pattern of the work week that may prevail in 1970. It is actually an annual-man-hours model rather than a 37-hour scheduled work week. The 40-hour work week might remain

the general standard for scheduled hours: lower average weekly hours from present levels would result from a combination of shorter scheduled or overtime hours and more weeks of leave, holidays, or vacation.

In Model A, hours are gradually reduced by 1960, 1965, and 1970 to reach a weekly average of 36.9 hours worked in private employment in 1970.¹ For that year, the pattern specifies an average of 35.7 hours in manufacturing, 36.7 in other nonagriculture, and 42.4 in agriculture. These reductions do not appear out of line with trends, if past data are adjusted for years of slack employment, but may be viewed by some as too small.

The 30-Hour Model. Compared to the 1,920 hours of annual work in Model A, the 30-hour model specifies 1,612 hours worked annually on the average in private employment. Weekly hours in 1970 are assumed to average 30 hours in manufacturing and other nonagriculture and 40 hours in agriculture—or 31 hours for private employment as a whole. Again the reduction in hours in Model B may take various forms but greater changes would be necessary in weekly workdays or scheduled weekly hours than in the case of Model A. The typical work week schedule would remain above 30 hours in most industries.

Gross National Product Projections

Gross national product estimates for 1960, 1965, and 1970 were obtained by projecting man-hours of labor input at assumed values of output per man-hour in 1954 prices. Government and private product were treated separately and the latter was broken down into three components—manufacturing, other nonagriculture, and agriculture—weighted to reflect changing proportions of output in an expanding economy.

Total civilian employment was estimated by projecting the total labor force for 1960, 1965, and 1970 and making allowances for a three-million armed force and 3 per cent unemployment which was assumed to be consistent with a full employment economy. The civilian employment available for the private sector, which includes government “business-type” enterprises, was then obtained by deducting expected employment in general government. The labor force estimates used were provided by Miss Sophia Cooper, of the Bureau of Labor Statistics, and relate expected worker rates to population in specified age-sex groups for the three forecast years. The population projections are the A (high fertility) projections of the Bureau of the Census as published in 1953.

In the private sector, gross output was estimated separately for manufacturing, other nonagriculture, and agriculture through a series

¹ Throughout, average weekly hours conform in concept and level to the historical series of the Census Bureau's Current Population Survey, adjusted for zero hours of workers with a job but not at work.

of approximations by which consistency was obtained in terms of available labor, differential hours and productivity assumptions, and historical relationships between the components.

The crucial productivity assumptions derive from an examination of differential trends in the economy. Productivity trend data in the form required for present purposes—gross private product in constant dollars for each of the three broad private sectors—were available in unpublished estimates by Jack Alterman, of the Bureau of Labor Statistics. Identical productivity assumptions were made in both the 37- and 30-hour models in the interest of comparability. In any case, since there are offsetting factors which may raise or lower productivity expectations at higher or lower levels of output in the future, it would be difficult to introduce plausible differentials.

The historical data suggest the following as reasonable expectations of productivity change in the years ahead: 3 per cent annually in manufacturing, 2.5 per cent in other nonagriculture, and 5 per cent in agriculture—all compounded annually. These rates, applied to changing proportions of output in models A and B, work out to about 3 per cent compounded annually—somewhat more in Model A than in Model B because of the lesser weight to agriculture at a higher level of output (output per man-hour in agriculture being less than in nonagriculture despite the assumed greater rate of increase).

In 1970, gross national product reaches 676 billion dollars in 1954 prices in the 37-hour model and 567 billion in the 30-hour model. GNP in Model A is thus 87.5 per cent above the 1954 level of 360.5 billion dollars, and Model B is 57.3 per cent higher than 1954. GNP per capita is 49 per cent above 1954 in Model A and 25 per cent above 1954 in Model B. Per civilian employee, GNP is shown to increase at a rate of 2.36 per cent annually in Model A and 1.23 per cent in Model B—compounded.

Alternative Models: An Interpretation

Four alternative income and expenditure models in broad terms were constructed for 1970 for each of the two basic GNP (the 37- and 30-hour) models. Generally, for each pair of variants, the assumptions were kept as similar as possible. (Only one pair of estimates is reproduced in summary form in Table 2.)

In the alternative models, the effort was made to construct viable patterns of expenditures under conditions of growth and stability at the two assumed levels of labor input. The results do not seem to suggest problems peculiar to one or the other set of assumptions as to hours.

In both groups of models, certain tendencies appear to emerge but not as special consequences of the hours assumptions. Retained bus-

iness earnings, for example, represent an increasing source of investment funds. This tendency, if correct, would result (as in the models) in lowering the personal savings rate below what is indicated by past experience. If depreciation allowances do not provide so large a source of funds, the personal savings rate could be higher than assumed. Alternatively, the indicated levels of business investment—which appear excessive in light of past experience and published studies of capital requirements—could be lower.

In all except the last pair of models, total government expenditures

TABLE 2
ILLUSTRATIVE ECONOMIC BUDGETS, 1970
(Billions of Dollars, at 1954 Prices)

ITEM	RECEIPTS	EXPENDITURES	EXCESS OF RECEIPTS (+) OR EXPENDITURES (-)	PER CAPITA EXPENDITURES INDEX (1954=100)
Alternative Model A-1				
Consumers	465.7	434.9	+30.8	146.4
Business	85.5	110.3	-24.8	185.6
Net foreign investment	—	6.0	- 6.0	—
Government (excluding transfers, etc.)	124.8	124.8	—	128.7
Gross national product	676.0	676.0	—	149.1
Alternative Model B-1				
Consumers	395.2	369.1	+26.1	124.2
Business	71.8	91.9	-20.1	154.7
Net foreign investment	—	6.0	- 6.0	—
Government (excluding transfers, etc.)	100.0	100.0	—	103.1
Gross national product	567.0	567.0	—	125.1

are fixed on the basis of broad tax rate assumptions to equal receipts (for federal, state, and local governments taken as a whole). Under similar tax assumptions, government expenditures are naturally considerably higher in the 37-hour than in the 30-hour models. Basically it was assumed that tax rates in the ordinary sense would be so adjusted to equal the "effective" 1949 rates in terms of percentage of incomes or expenditures on which they impinge. Thus, tax schedules in the ordinary sense would be substantially below the present or 1949 statutory rates. (In two models, taxes were reduced 10 per cent further for illustrative purposes.) Whether the indicated levels of government expenditures are more or less than public policies in the future will dictate in fact, it is difficult to say.

In all models, government expenditures (contrary to historical trends) increase much less than gross national product or other major components of expenditures; and in the 30-hour models there is little if

any increase on a per capita basis. By assumption, a greater proportion of the increment in production could be allocated to government, by reducing consumption or investment expenditures, or by higher taxes than assumed. In two models, government deficits are shown; the effect is to permit a reduction in business investment, which as noted appears excessive in any case, and to raise government expenditures. These are choices of public policy.

Problems of economic growth and stability hinge on many factors, including the rate of personal savings (in the models, highly conjectural and perhaps too low) and the growth of business savings as a source of financing. Professor John D. Black, in including shorter hours in this series of papers on components of economic growth, raised the question of the effect of price change in relation to consumer demand. It has not been possible in this paper to explore this in any adequate way. No attempt has been made to work out future income distributions or consumer expenditure patterns at various levels of incomes and prices. For simplicity in making the projections, constant prices were assumed.

One effort in this direction, however, was attempted. In all but two models, unit wage costs were assumed to remain constant; that is, compensation to employees (excluding military) was held at a constant percentage of gross national product (excluding military). Thus real wages of employees advanced *pro tanto* with increases in productivity. In two of the models, this assumption was relaxed.

There is some basis in reality for projecting some increase in the ratio of employees' compensation. Accordingly, in these two models, unit wage costs were increased and national income shares other than compensation to employees (excluding military) were reduced. The effect of this assumption would appear to be to decrease the rate of business and personal savings and to raise consumption. Since constant prices at the product level are assumed in the models, this has the effect of increasing the real income of employees in these two models beyond that indicated by the general increase in productivity. These tendencies would be enhanced possibly, in a 30-hour economy, if wage bargaining power were strengthened and unit wage costs further increased; but real wages remain substantially lower at 30 hours than at 37 hours of work even when the assumption of a larger increase in unit wage costs in the 30-hour model is made.

Problems of adjustment to the technological changes, implicit in the relatively rapid rate of productivity that was assumed, would undoubtedly be minimized to some extent if hours are progressively curtailed in the direction of a 30-hour week. In the process of displacement, at least in temporary phases of lack of expansion, unemployment

would be minimized; frictional unemployment presumably would be somewhat less at all times.

On balance, otherwise, it is difficult to see that economic viability is greatly affected by the choice of a 30- or 37-hour week. We cannot visualize the reality of 1970 clearly; the problems may be more difficult than we can imagine and solutions may come in ways we cannot now foresee. If there is an oversaving tendency, it might be somewhat less at lower levels of income in a 30-hour economy. One result, however, seems axiomatic, in full employment models at least: the choice of relatively more leisure results in lower gross national product—a foregoing of private consumption or alternatively of additional public services. Progress in technology and in the rate of productivity increase would not appear to be impaired.

Comparing the various 37- and 30-hour models, per capita personal consumption expenditures show an approximate increase in the 37-hour models of about 50 per cent in 1970 over 1954, and an approximate increase in the 30-hour models of about 25 per cent. Investment expenditures per capita show a higher increase than the increase in gross national product in both sets of models. Government expenditures do not keep up with other expenditures under the assumptions made. On a per capita basis, government expenditures are virtually unchanged between 1954 and 1970 in the 30-hour models but increase about 30 per cent in the 37-hour models except in the one illustrating low taxes and government expenditures, in which per capita expenditures increase by about 10 per cent by 1970.

Aside from these differential movements, which arise by way of special assumptions, the results generally reflect, of course, little more than the differences in labor input in the 37- and 30-hour models. Since prospective productivity increases exceed the assumed reductions in hours in both sets of models throughout the entire period 1954-70, real income per employee increases steadily regardless of shortening of hours, assuming constant or increasing unit wage costs. Real income per capita increases in comparable fashion since there is little difference between expected population and labor force growth.

What patterns may emerge in reality will depend largely on the importance people attach to additional increments of private and public goods and services compared to more leisure and perhaps to the special incidents of collective bargaining. Since both leisure and real money income may be subject to diminishing subjective valuation, it is impossible to predict to what degree average annual work hours may be reduced in the future.

DISCUSSION

CLARK KERR: Hours of work are certain to be a most important issue over the next decade or so. The "standard" work week in the United States has remained quite constant, at 40 hours, for about twenty years, although it is true that more persons are now below 40 and fewer above than twenty years ago and thus the average week actually worked has declined. But 40 hours was considered a "normal" work week in the middle thirties and it is still so considered today. In the meantime, productivity has increased and is continuing to increase quite substantially.

We are now approaching a period of re-evaluation of this normal in our effort to work out a reasonably acceptable balance, on an economy-wide scale, between income and leisure. How much are hours of work likely to be reduced? How will this new leisure be distributed over the working year and the working life? What may be some of the consequences of this new gain in leisure? How will our social processes effectuate this reduction of working time and the distribution of the new leisure?

Mr. Stewart has given us several models for the year 1970, assuming the 37-hour week and the 30-hour week. I assume that his statistical calculations are accurate and shall comment on other aspects of his paper and on the problem of reducing hours generally.

First, Mr. Stewart assumes an annual increase in man-hour productivity of 3 per cent a year. No one, of course, can do more than guess about what it will be a decade or a decade and a half ahead. My guess is that 3 per cent may be a bit high. Manufacturing industry may well make the 3 per cent suggested, particularly with new automatic devices and perhaps also new sources of power. But 2.5 per cent appears high for other nonagricultural pursuits, which increasingly means restaurants, beauty parlors, and the like where productivity is as difficult to raise as it is to measure. And agriculture can hardly keep pushing ahead at a rate of 5 per cent a year. Many if not most farmers now have tractors and access to purebred bulls and know about commercial fertilizers. And if a growing government sector is added in to the calculations—and man-hour productivity is assumed to be fairly constant in the public sector—then the 3 per cent rate seems even more optimistic. The Dewhurst assumption of 2.3 per cent (without government) appears more realistic. The assumption about the annual productivity increase is absolutely basic to all forecasting about hours of work.

Mr. Stewart also appears overly optimistic in one of his models which assumes a 10 per cent increase in labor's share of national income. On past performance of this and other economies on which statistics are available, such an increase in labor's share over a decade and a half, barring a catastrophic depression, which he does not assume, would be one of the great social phenomena of the century.

The second basic assumption in predicting hours of work has to do with how increased productivity is shared out between increased income and

increased leisure. It is fairly common to assume that the division is about half and half. This was the apparent rate of sharing in the United States over the past century. This seems to me to be too high a share for leisure looking ahead for the next ten or fifteen years in the United States. First, the ratio has been shifting in favor of income in more recent times: it was 60 per cent for income and 40 per cent for leisure for the period 1920 to 1950. It seems likely this shift will continue, for the desire for added income is probably more insatiable than for added leisure. At some point (and one with many fewer working hours per year than now), the share for income will approach 100 per cent.

Second, the recent share for leisure in the United States appears comparatively rather high. Perhaps it occurred because we moved quite quickly and comparatively early to the 40-hour week. It has been not 40 per cent but about 20 per cent for a similar period of time (approximately 1920 to 1950) in Great Britain, Sweden, and Australia. France is a great exception and the ratio there is the other way around. Whether this is the result of the historical fact of the great hours reduction during the Blum regime coupled with a relatively unprogressive economy, or just the Gallic sense of values at work, or something else, I do not know.

Third, these ratios are quite erratic. In Sweden, for example, the share of leisure was 60 per cent from 1918 to 1924 and 5 per cent from 1924 to 1947. Generally, hours go down most in depression periods or postwar periods (which have often been the same thing)—like they did in the Great Depression and post-World War I in the United States. No similarly spectacular changes usually occur in periods of steady prosperity. Hours of work are a kind of convention of the market place and changes in the normal practice, as with many customs, tend to come in spurts. Wages, on the contrary, are normally subject to fairly constant change and thus the income share is open to fairly constant increments, with increments in the leisure share coming more erratically as hours of work are reduced in periods of major economic adjustments to catch up with or perhaps run ahead of the long-term trend. Whether such a period of major economic adjustment will occur over the next decade and a half, no one can predict with certainty. In the absence of such a period, I would expect a relatively modest reduction of hours of work—rather less than the historical 50-50 ratio would suggest and less than the 3 hours a week per decade which was the average for the past century, and certainly less than the 4 hours per decade which was the average for the first half of this century. Dewhurst suggests a little less than 2.5 for the decade 1950 to 1960. It might be noted, parenthetically, that the 3 hours reduction per decade over the past century was partly due to a shift in the industry "mix" from agriculture with long hours to nonagricultural activities with shorter hours.

If productivity rises less and the leisure share is smaller than sometimes assumed, then hours of work will not go down so spectacularly as some predict; but they will decrease significantly. What form may this reduction take? Since 1940, a substantial proportion of the actual reduction in hours per week (averaged over the year) has come in the form of a general intro-

duction of vacations and a lengthening of these vacations and of more holidays. It seems likely this trend may continue to a degree, although there are many suggestions for the six-hour day or the four-day week. As between these two, considering particularly the increasingly heavy investment in daily commuting time for many employees, the four-day week may turn out to have the greater appeal. Assuming a reduction of 2.5 hours in weekly working time averaged over the year each decade for the fifties and sixties, by 1970 the standard scheduled work week might be reduced from 40 to 35 or the standard vacation period might be raised from two to eight weeks per year or some combination might be worked out like a four-day week every second week (which would amount to a holiday with pay every second week) and a four weeks' vacation with pay. By 1970 I should expect that hours per week, averaged over the year, might be about 33 as a norm in manufacturing industry instead of the norm of 38 which applied in 1950.

The possible approaches are almost infinite in number and there is almost certain to be great debate about them particularly within unions and between unions and management. The reduction in the scheduled work day and work week was a quite obvious solution when employees were working past the point where excessive daily and weekly fatigue set in, but this is no longer the situation and other alternative ways of reducing working time may appear increasingly attractive.

Just as there may be a great deal of internal debate about the matter, so also there may be a great deal of variation in solutions. Already there are some scheduled 30-hour weeks (mostly developed during the depression years, however) and some vacations with pay of four weeks. University faculty members, managers and their assistants and others may generally favor the longer work week coupled with longer vacations, while manufacturing workers may choose a shorter work week and shorter vacations, and so forth. Residents of small towns may have one preference and of large metropolitan centers another. The concept of the "standard" work week may largely disappear in a welter of arrangements as men have more real choice in the distribution of their leisure hours. The new standard, to the extent there will be any standard at all, may be in terms of hours scheduled per year, which now run a little less than 2,000 and by 1970 may be a little over 1,700. By that time, we may be talking about a "1,700 a year" contract, instead of a "40 a week" one. Putting it this way gives men a better chance to get an optimum distribution of their leisure time around the year and limits them less in their range of choices than does the emphasis on the scheduled work week alone.

The reduction in working time and the form in which it is taken will have many consequences of which I should like to indicate four. First, there will be effects on productivity per man-hour. Historically, the reduction in weekly hours of work has helped make possible the increased average tempo of effort and thus shorter hours have in part paid for themselves. Whether this will continue in the future, or at least to the same extent, is certainly problematical. Particularly if the reduction of working time takes the form of the six-hour day or the four-day week, a higher proportion of hours will be spent in the relatively inefficient "breaking in" and "breaking out" times. The

first hour in the morning and the last hour in the afternoon and Monday mornings and Friday afternoons are generally low output periods. Just as there is an "optimum output" work week in the sense of maximizing total output per worker over some period of time (a consideration of importance now only in a period of a major war), there must also be an optimum output work week from the point of view of maximizing hourly output per worker—up to which point a reduction of weekly hours increases average output per hour and beyond which it reduces it. (Quite conceivably there is no such "neutral" point but rather a substantial range within which a change in hours worked, in and of itself, has no impact one way or the other on hourly output per worker.) The form to be chosen for the reduction in working time might well be affected by these efficiency impacts.

But there are other results for productivity. Shorter working time may mean less absenteeism on the part of the bulk of workers: it is both less attractive and can less well be afforded since each hour is a constantly higher percentage of scheduled working time. Also, injuries will be fewer and in other ways the average length of working life will be prolonged. More years are spent now outside the labor force—with longer periods of education at the start of life and of retirement at the end—but average years inside the labor force have also lengthened. Some amount of annual working time is also "optimum" from the point of view of maximizing the working span of life; and it will vary, of course, very greatly from occupation to occupation. Additionally, more nonworking time may well lead to training and other activities which raise the average level of skill. Because of these and other factors, the productivity consequences of a reduction in working time are quite complex—and also not negligible.

Second, there will be effects on the size of the labor force—and probably generally to increase it. Particularly if scheduled hours per day and per week are reduced, more women, more aged, more students will be drawn into the labor force. Also, more people will have second jobs (like some rubber workers in Akron), so that the number employed conceivably might come to be more than the number of people in the labor force, despite frictional unemployment.

Third, the volume of employment may become more constant. Traditionally, the work week has been fairly fixed and the work force variable. This is being reversed with the work force becoming fixed and the work week variable. Many reasons lie behind this trend, but one among them is that the work week is more readily expandable with less grumbling and other undesirable effects (like excessive absenteeism) when it is relatively short instead of relatively long. The level of employment will come to be more meaningfully measured by the number of hours worked instead of the number of persons employed; and national policy will come to be more directed at a certain level of hours of work than of employment. Incidentally, I think Stewart in his models sets a rather low figure for unemployment at 3 per cent; 5 per cent appears more nearly "normal" for the American economy.

Fourth, consumption patterns will undoubtedly be much affected by the reduction in working time. Everything else remaining equal (which it will not), more leisure might well mean a higher propensity to consume. The

direction of consumption expenditures will be much affected by the increased amount of leisure but particularly by the form it takes. Certainly a higher percentage of income will be spent on travel, gardening, and many other activities, and the demand for many governmental services, like highways, libraries, and parks, will rise.

The process of developing and then enforcing the new rules of society regarding working time is likely to be somewhat painful. The law may be less helpful in setting new norms than it was in the thirties. Below the eight-hour day and the five-day week, the humanitarian drive, to protect health and to create conditions conducive to good citizenship, lying behind governmental action is much reduced. In the absence of a major depression, there is also less of a clear call for a public policy to share the work. Additionally, the variety of patterns of working time, which are almost certain to develop, will create for government less of a clear-cut minimum practice to be extended by law. More of the decisions will be left to collective bargaining, and here the concern of employers in increasing efficiency and of the unions in creating a satisfactory income-leisure balance for their members may pull to a lesser extent in the same direction, although it should be noted that they never did pull at anything like the same rate. Further, the unions will be subject to many more points of view internally about the proper balance between greater income and greater leisure and the proper method of distributing the greater leisure over the year than in the past. Finally, in the new era of constant full employment and international peace (which we hopefully think we are in) there are fewer natural crises in which the customs about normal working time can easily be changed. A consciously man-made crisis in the collective bargaining arena may have to be fashioned as a substitute.

Enforcement of the new rules will also be difficult. Ideally, each man, like Robinson Crusoe or the boy in the blackberry patch, would work as long as the added utility of the income more than offset the added disutility of the work and then he would quit. But this would vary greatly from man to man and even day to day for the same man. The scheduled hours of work at best can be only an approximation of what the labor force desires, and a rather crude approximation at that. Adherence to the scheduled hours will be increasingly hard to obtain for at least three reasons. First, more people all the time are being covered by such schedules and fewer are left to their own self-choice; and thus the magnitude of the enforcement problem expands. Second, full employment gives more people a chance to get around the schedules by working at second jobs if the standard schedules are too short for them or getting away with absenteeism if they are too long. Third, as the labor force becomes more diversified (through drawing in women, students, the aged), it becomes more impossible to get a schedule which satisfies both the fully committed and the partially committed members of the labor force; and hours scheduled and hours worked will bear less and less relation to each other. (Hour schedules are coming to determine more the wage rate paid than the number of hours actually worked.) All this will create problems for management and to a lesser extent for unions; but not necessarily for the

workers. Along with the growing social right to a job may develop more of an accepted right to fit the hours on a job, within reason, to one's own desires.

SOLOMON BARKIN: The present discussion centers on two distinct problems. The first is an analysis of the adequacy of the projection technique for the examination of the effect of the shorter work week. The second is an appraisal of the change as a stimulant to economic growth.

As for the first, we must conclude from an analysis of the paper that the technique is not the most profitable one to pursue for the analysis of the shorter work week as a component of the processes of economic growth. It necessarily limits the number of factors to be considered and the types of impact which can be examined. The writer restricts his consideration to the effect of the reduced number of available hours upon the gross national product after assuming the continuance of present trends of labor participation and rates of increase in productivity. The reduced number of hours is, therefore, necessarily assumed to reduce the total output. The discussion, therefore, excludes many dynamic factors in our culture which would alter the above course of events.

The projection technique appears most useful in the analysis of problems of a short-range character for the understanding of the potential impact of current trends upon our physical resources and for theoretical economic analysis. It appears less appropriate for the study of the impact of changes, such as the shortened work week, which bring in their train far-reaching social reorganizations, new patterns of personal behavior, and revisions of industrial organization.

An understanding of the process of economic growth requires more than an accounting of the supply of workers defined in terms of man-hours. Fortunately, the principal paper recognizes this fact in the introductory observations in which the author pays his compliments to the revolutionary consequences of shorter hours upon the worker's efficiency and creativeness. Individual effectiveness is increased, not only through greater application, but also through better personal preparation. The shorter work period has also sustained the growing demand for goods and new services.

Why must we assume, as the projection procedure employed in the principal paper necessarily does, that the possibilities for further human development have been ended? Why must we take for granted the belief that we have come to the limits of human capacity? The economic analyst is not alone among the analysts who have fallen victim to the limitations of the techniques of mechanical projection when dealing with human phenomena. The industrial engineer—presumably conversant with the capacities for human application—has pronounced fixed universal time values for human movements on the assumption that the physical nature of man is inalterable. He has taken this step largely to reinforce the incontestability of his position in industry. Yet all our knowledge of the contrasting levels of application in different cultures belies this conclusion. Even psychologists, on the basis of limited samples of data, have extrapolated fixed ranges for human capacity. Fortunately, our experience in this area contradicts this conclusion, and accumulating evidence

of successive generations of people points to the reality of development in human capacity. The assumptions of the economist as to the fixity of potential must, therefore, be called into question.

A second basic determinant is the assumed rate of 3 per cent increase in man-hour productivity. Some commentators might question the appropriateness of the rate itself. But I believe that more fundamental in the appraisal of the present projection is the assumption of a single uniform rate for such long periods as ten and fifteen years. Fortunately, we have sufficient data now on the gross national product per man-hour to be able to test the soundness of this approach. Using Kendrick's data as brought up to date by the staff of the Joint Committee on the Economic Report, we find that the annual average rate of increase in private real product per man-hour from 1911 to 1920 was 1.3 per cent; from 1921 to 1930, 1.9 per cent; from 1931 to 1940, 2.9 per cent; and 3.7 per cent for the period of 1947 to 1953. The comparable rates for the farm segment were .3, .8, 2.9, and 3.4; and for the nonfarm economy 1.6, 1.8, 2.8, and 3.4. The future holds up to us vast potentialities for equally impressive advances in the rates of increase in our gross national product per man-hour. It is, therefore, more appropriate to project not on a constant basis but with a ladder of progressively higher rates of productivity improvement.

One deficiency in the use of past rates of increase in productivity is that they were derived from periods in which the business cycle exerted a strong influence. Recessions tend to exert a depressing effect on productivity, since they result in the underutilization of capital stock and the discouragement of new invention and discovery. In making long-time projections in our current environment, we must modify these rates to take account of the determination to eliminate major dips in business activity.

Current analysis points to the importance of research in propelling industrial productivity. For the first time in industrial history, these activities have been organized on a large scale and are expanding. All types of firms are undertaking such work in addition to the high volume sponsored and financed by the government and the universities. Research expenditures have risen from less than 1 billion dollars a year at the end of the thirties to more than 5 billion a year. Certainly, projections must take this significant fact into account.

An assumption of a 3 per cent rate of unemployment is one which provides for convenient statistical manipulation, but it will not be routinely accepted by advocates of the shorter work week. Not only is the level too high, but the presumption that there is a minimum level is also highly questionable.

As of November, 1955, we had an unemployment rate of 3 per cent, but it existed at a time when nineteen large and forty-five small labor market areas were suffering from more than 6 per cent unemployment.

These cases of local distress have aroused nationwide concern. The Joint Committee on the Economic Report focused on these problems in the January, 1955, hearings and again in its November round tables on the problems of low-income families. Dr. Arthur Burns indicated that the Administration will propose measures to convert these communities into prosperous ones. If it is, therefore, now widely recognized that such pockets of chronic un-

employment exist in a period of high employment and that they must be eliminated, we cannot blithely calculate projections on a 3 per cent unemployment basis.

In considering the rate of unemployment, attention must also be focused on the efforts made to reduce the periods and impact of unemployment through efforts at personal rehabilitation, training, and counseling, as well as drives to get employers to use specialized placement and job redesign techniques to open up employment opportunities for special groups within the population.

More critical analysis is necessary as to the proper rate of unemployment which might be used in projections. The meaning of full employment has been too cavalierly dealt with in economic literature.

The rate of labor market participation used in these projections has been made obsolete by developments in 1955. In the third quarter of 1955, the male participation rate was 59.8 per cent as compared with the rate of 59.1 per cent in the third quarter of 1954. The rise among women for the same period was from 33.9 to 35.7 per cent. The rate rose for each five-year age grouping but one. Certainly, projections must take account of these radical alterations of our social patterns.

Another important factor which needs study is the prevalence of part-time workers who are interested in full-time work. They are significant in number even in periods of full employment. One need only study the census report for September, 1955, to be impressed with the potential for vast increases in output from the underemployed. Eleven per cent of the people who worked less than thirty-five hours in the survey week in agriculture and 22.6 per cent in nonagricultural industries worked part-time for economic reasons.

Another factor of significance is the prevalence of dual employment. With the shortened work week, there will be more and more opportunities for this practice to increase.

Finally, the very proposal for the shortened work week is offered by trade-unionists to solve the problems of extreme unemployment, such as occurred during the thirties or as has been prevalent in textiles and coal. Another group of trade-unionists have underscored the need for a shorter work week to meet the problems flowing from the onrush of technological change caused by automation, electronic developments, atomic power, and systems technology, to enumerate a few of the more impressive innovations. There is a deep-seated conviction that our current economic organization is not sufficiently elastic to absorb the displaced workers or provide employment to the vast numbers of new people entering the labor market or desiring remunerative employment. It is, therefore, difficult to accept an analysis of the impact of the shortened work week which casually operates on the assumption of continuing high employment. The critical issues are whether such assumptions are correct and, secondly, whether the continuance of this state of high employment will moderate the demand for the shortened work week.

The second major question is whether the acceptance of the shortened work week will act as a new determinant of the rate of economic change. It may be safely said that the reduction of hours to 48, 44, and then to 40 has stimulated economic growth by affecting the individual's capacity for individual pro-

ductivity, by providing new opportunities for reflection and invention, and by allowing for greater individual preparation. New cost relationships developed between the factors of production, so that more incentive developed to substitute new for old ones. The changing schedules made for new rearrangements, and with them automatically came higher rates of productivity. The literature on the effects of the previous reduction of hours is rich with suggestive material on the implications of such changes for the productive potential. The economist's challenge is to organize this information into a formal system which would define the manner in which changes in this element help determine the rate of economic growth. With the increased awareness of the importance of cultural elements in conditioning the rate of development, the economist is developing the sensitivities necessary for such integration.

A rounded theory of economic growth will not depend for its analysis upon mechanical projections of the effect of shortened work hours. The lower weekly hours will not necessarily mean a reduction in potential gross national product in the order of 15 per cent as is suggested by the models of the 30- and 37-hour weeks. Rather the stimulation provided by the shorter work week may itself accelerate the expansion so that the output under the shorter work week will far exceed that attainable under the longer one.

The vision of the shorter work week has gripped the imagination of the American people. The pressure has increased measurably. No sacrifice or slowing up in the rate of improvement of the standard of living will be accepted. Both the values of greater leisure and higher standards will be concurrently sought. The development of a schedule for their realization will be greatly facilitated by continued and intensive study of the problems and potentialities of such revisions.

NELSON N. FOOTE: Mr. Stewart's procedure in phrasing the consequences of alternative shortenings of the work week is itself an effective example of impending transformations of the nature of work. Having identified the major conditioning assumptions in the problem of economic growth and given them quantitative expression, he then relates them—as mediated by various lengths of the work week—to the differing structures of output and expenditure which would result at successive five-year intervals. By varying the figures adopted for each of his assumptions, multiple projections can be derived. The calculation of further examples can now be turned over to Univac, while we put our minds to the more human work—or play—of speculating about his several assumptions.

My assigned task is to comment on those aspects of his paper which involve the sociology or social psychology of work and leisure. But since the economists who have preceded me have already made so many of the sociological points I had in mind, I am tempted to consider a few economic aspects that deserve more attention than given by them.

Let us start first with the assumption taken by Mr. Stewart to be so self-evident that he labels it axiomatic: more leisure means less product. This he qualifies historically by pointing out that the work week has never been shortened so rapidly as to exceed the rate of growth in productivity; Ameri-

can workers have never had to suffer lowered real wages for shorter hours. But the alternatives presented rely heavily on the reality of the aggregate choice between more leisure and more consumption.

I would argue that American workers are not unrealistic in desiring both, and in feeling that they are not antithetical. Leisure is always filled with some kind of activity; it is leisure in being unpaid activity but not in being unproductive. Mr. Stewart himself suggests a few of the ways in which this unpaid activity may contribute to further productivity. The improvement of human resources and their utilization through hygiene, education, recreation, and the heightened exercise of imagination make a contribution to economic growth which is commonly underestimated if not ignored. Researchwise, economists will soon have to commence evaluating the consequences of leisure from this standpoint. But the other social sciences have a still bigger job to do in evaluating which leisure activities do indeed improve human resources and which only squander them. I believe that in the aggregate people who can choose will be found—once they get used to this new wealth—to prefer leisure pursuits from which they derive some residue of increased competence or opportunity in their work roles.

Given both more leisure and more income the question of how larger gross national product is to get distributed still remains a far more serious problem than implied in simply assuming rising real income per capita. Its seriousness is reflected in Mr. Stewart's allusions to viability and oversaving. We are not eating enough now, even with free distribution to the poor, to keep up with rising productivity in agriculture. Many observers fear we are near saturation in various hard and soft goods, even if their prices are cut and low income levels are raised some more. It may be that the arts of selling can go on indefinitely creating further wants for material goods or, if not, selling itself can be elaborated as a make-work or make-waste scheme for using up undistributed product. The other day, however, my wife received fifteen cents in cash for purchasing a certain brand of tomato juice, which hints that the heads of the advertisers may already be bumping the ceiling.

The obvious channel for unlimited expansion of consumption is in the realm of services, and particularly professional services—again, health, education, recreation—that require leisure to consume. Even wise and tasteful shopping takes time. We have thus not one but two countertendencies to keep consumption of goods from rising as fast as productivity of goods: the simple preference of the individual worker for less work instead of more money and the mounting aggregate preference for expenditure on services to expenditure on goods.

This perspective sheds doubt on Mr. Stewart's assumption that government expenditures will continue about level or decline relatively. To be blunt, many if not most of these professional services of which people want more will have to be distributed free—consider education at all levels. Consider also urban redevelopment (which will reduce commuting). Consider also roads (that is, travel), hospitals, radio and TV entertainment, and above all the stupendous case of research, of which everybody and nobody is the consumer. We are rapidly moving into that unwonted if not unwanted state of affairs

in which the only real alternatives are political: whether goods and services of certain kinds are to be distributed free to all citizens or by the corporation to its employees. David Riesman says the corporation is becoming a junior welfare state. The tax laws rather than the market thus become the mechanism for apportioning that margin of goods and services which cannot be distributed commercially at a rate to keep up with rising productivity. I think the corporation is probably in the stronger position to handle this job, under the guise of legitimate business expense, and it seems willing as well as able.

We may be witnessing here a historic change of position by the unions, in which they encourage employers to distribute more and more items direct to members and their families rather than seeing the flow channeled through taxes or, after a certain point, wages. Starting for transient reasons with fringe benefits during the war, the unions have turned more toward employers for pensions, health and welfare benefits, retraining and other increments to consumption under a national administration less friendly to labor than under one that was more so. This paradox may continue, with further union demands phrased like those of late 1945 in terms of aggregate distribution policy.

It will become increasingly important to distinguish that quantity of consumption which occurs on company premises and time from that which may be furnished the worker and his family away from work, in addition to his pay check. There is already a profusion of such on-the-job benefits which apply mainly to executive and white-collar ranks but are spreading rapidly downward. Executive development programs, conferences, coffee breaks, "economic education," house publications, and industrial recreation illustrate their range. And the growth of high life on the expense account illustrates the amount of money they can soak up. The line between work and play on the job gets dimmer every year.

In both range and intensity, we are only at the beginning of the trend to job improvement, as a single example may suffice to demonstrate. Probably before 1970 many unions will have demanded and won air conditioning of the factories in which their members work. A good part of the fruits of economic growth is going to find its way into such improvements of the conditions of work rather than into leisure or home consumption. Net occupational movement from manual to white-collar jobs encourages this expectation. Under conditions of strong demand for labor, such on-the-job improvements are likely to appeal to companies needing labor but not wanting to disturb wage and price patterns. I cannot resist noting that the unions seem backward about preparing such demands, although a few employers in the past have resisted unionization by offering just such benefits.

To recognize the widening of these channels of subsidized consumption would not alter Mr. Stewart's analysis of the nation's economic budget at the aggregate level, but it may fortify his assumption of viability.

Finally, however, I would question both historically and theoretically his assumption that the ratio of the labor force to the total population will remain about constant. Several observers foresee a coming "labor shortage" of severe dimensions as the proportions of children and old people in the population rise. Apart from this demographic state of affairs, it seems to me quite evident

that the ratio of the labor force to the total population tends to increase with every reduction in the work week or work day. The proportion of women has been rising steadily, moreover, whereas during the depression it was cut. "Spreading the work" may be stimulated more by prosperity than by depression. The varied combinations of working time now being experimented with, if they spread under the stimulus of labor scarcity, bring additional persons into the labor force who are now kept out by long, inflexible schedules. To widen labor force participation by reducing the work week may thus be not to restrain productivity but the opposite. And while the total may not be impressive, a reduced working week would lead some workers to hold two jobs, since some would prefer more income to more leisure.

To summarize, if the main point of our central paper is that a shorter work week has as its main consequence the foregoing of higher production and consumption, the main point of this comment is that leisure and work are not as antithetical as traditionally conceived. Concepts must change to match the changing reality. Shortened hours force the up-grading of the nature of work, and this trend is abetted by the up-grading of the quality of leisure activities as well as their quantity. The professionalization of labor goes hand in hand with the growth of leisure. Professor Mark Kahn, of Wayne University, tells me that a steady trickle of rubber workers, who have been on the thirty-hour week since the depression, complete college courses on the side and move to something better. If the government maintains a million students on fellowships for full-time study, is that work or leisure? The concepts of work as onerous but worthy and of play as joyful but trivial are obsolescing as work and play merge in a productive synthesis.

HAROLD G. HALCROW: This discussion involves three points: (1) assumptions of labor productivity under the 30-hour and 37-hour week, (2) implications of alternative assumptions, and (3) comments on projections of productivity.

The crucial question in the models presented by Mr. Stewart concerns the productivity assumptions under the 30-hour and the 37-hour week. If aggregate product per man is in direct proportion to the length of work week assumed, then the labor force in nonagriculture will be smaller and the labor force in agriculture will be larger under the 30-hour week than under the 37-hour week, as the models postulate. This is true since national income will be smaller under the 30-hour week and the smaller the national income is the larger is the proportion of the total labor force in primary industries such as agriculture. However, if different productivity assumptions are made, then different distributions of the labor force would be postulated.

Alternative assumptions not included in the models are increased output per man-hour under the 30-hour as compared with the 37-hour week, increased opportunities for people to hold two jobs under the 30-hour week, possibility of greater participation by farm people in nonfarm employment, and probability of more overtime work with the 30-hour week.

If the 30-hour week is accompanied by greater mobility in the labor force, by more people holding two jobs, or by a trend toward increasing the number

of people employed in the family, then the aggregate product per man will not be in proportion to the assumed length of work week. The 30-hour week would not bring a corresponding reduction in output; the nonagricultural output would be larger than is postulated in Stewart's paper and the labor force in agriculture would be smaller than is postulated. As a matter of fact, according to a recent study, less than two out of five families designated by the Census as "farm" are wholly dependent on agriculture and about three out of ten farm families have nonagriculture as the major source of income. (Louis J. Ducoff, "Classification of the Agricultural Population of the United States," *Journal of Farm Economics*, August, 1955, pages 511-523.)

Under any consideration of a declining labor force in agriculture and a rising level of living in agriculture as compared with nonagriculture, the adjustment involves migration out of agriculture and modernization of farm units to provide higher productivity per man-hour. What this specifies is something on the order of the following program:

1. Broader and more adequate opportunities in the field of general education for rural youth. Data from the National Education Association show that school expenditure per pupil is substantially lower in many farm states, particularly in the South, than in urban-industrial states, ranging from \$125 per pupil in Arkansas and \$131 per pupil in Mississippi in 1954-55 to \$360 in New York and to more than \$300 per pupil in a fifth of the more industrialized states. (*Agricultural Outlook Charts, 1956*, U.S. Department of Agriculture, November, 1955, page 30.) Greater mobility exists among young people and long-run solution to the problem of low-income farms necessitates an enhancement of their mobility.

2. A credit or capital market designed to bring about ready adoption of new technologies and to facilitate accompanying increases in size of farm to provide the scale economies necessary for employment of these technologies. This requires a credit system based still less on existing land and collateral and more on earning potential of the reorganized farm units.

3. Expansion of farm management supervisory services to facilitate more efficient employment of the resources made available.

The best over-all adjustment of agriculture to the shorter work week depends on assumptions made as to real hourly wages, levels of employment in the nonfarm sector, and rates of progress in various industries. If the same real hourly wage is assumed under a 30-hour week as under a 37-hour week, then migration out of agriculture would be slowed down and problems of resource adjustment would be less urgent. This is the assumption in the paper presented by Mr. Stewart. However, if a higher real hourly wage is assumed under the shorter work week, which is an assumption that appears valid to a degree, then still greater attention to programs of resource mobility are in the national interest.

The projection of either 5.1 million or 4.7 million in the farm labor force by 1970 is a substantially larger force than is called for by criteria of optimum efficiency. There is a wide range of labor efficiency in agriculture, such that approximately 10 per cent of the farmers produce more than 50 per cent of the total farm products marketed and 50 per cent of farmers produce about

90 per cent. This wide range in productivity indicates that very large increases in productivity per man-hour are possible—increases exceeding the 5 per cent change compounded annually.

Although one cannot say if the 5 per cent projection is actually too high or too low, productivity changes, based on the combination of several innovations in technologies, have often outrun actual projections of trend and much higher levels of output are within the realm of practical possibility. Perhaps the most accurate picture of possibilities of the shortening work week cannot be obtained from projections of the sort under discussion. Rather an analysis of projections and necessary adjustments requires further elaboration of models, including further appraisal of technologies and labor-capital reallocations. However, this is a more ambitious undertaking than was planned for this discussion.

ECONOMIC GROWTH VIII. HIGHWAY DEVELOPMENT AND FINANCING

HIGHWAY DEVELOPMENT AND FINANCING

By O. H. BROWNLEE AND WALTER W. HELLER
University of Minnesota

I. Introduction

Highways provide transportation services—as do railways, airlines, waterways, and pipelines. It is to be expected that as real income per capita grows, the demand for transportation services will grow. And since the supply of such services is not completely inelastic, one expects also that the quantity provided will be expanded. Unless there is excess capacity in the various segments of the transport industry, expansion in capital investment in each is an economically desirable way of providing this increased supply. Highway facilities should grow along with per capita real income, but the rate of this growth should be determined with reference to the desired rate of growth in other forms of transport.

It is probably true that parts of the highway system have not been developed rapidly enough, particularly during the last fifteen years. However, if some recently proposed plans are executed, there may be overexpansion of the highway system in the future. One must use the words “probably true” and “may be” because of the ways in which highway services have been rationed among users and decisions have been made as to the size and pattern of highway expenditure. Our rationing and construction criteria make it difficult to evaluate the highway system and plans for future development according to the economic criteria one would wish to apply. For example, rates of return on investment cannot be estimated accurately from existing data.

It is common knowledge that highway development has not kept pace with the growth in vehicle numbers or miles traveled on the highways. In real terms, highway expenditures during the decade since the end of World War II are about the same as those during the decade of the thirties, although vehicle numbers and miles traveled have more than doubled during this period. Such comparisons might tell us whether expenditures should be expanded or contracted—if we knew that the system was nearly optimal at some specific time in the past and that preferences dictated a particular rate of growth in the demand for highway services relative to income. However, since we do not

know this, comparisons of growth in vehicle numbers and miles traveled with highway outlays are of very limited value.¹

In spite of our inability to evaluate the highway system in terms of the usual economic criteria, we do believe that the highway system in the United States is not optimal. This judgment appears to be widely shared. However, any particular judgment as to the proper solution of the highway problem is not so widely shared. Witness the disagreement—largely between Republicans and Democrats—during the last session of the U.S. Congress. Precisely defining, as well as solving, the highway problem undoubtedly will require imagination. But it is our contention that the imagination needed is not for formulating completely new ideas. The highway situation can be improved substantially by visualizing the similarities between the highway problem and a host of comparable problems to which economists have applied some rather ancient ideas; namely, those of “good old supply and demand analysis.”

Even if we were capable of formulating a complete solution to the highway problem (which we are not), it could not be done within the limits of this rather short paper. We propose to define in rather general terms what we consider the problem to be, sketch the basic elements of an improved solution to this problem, and indicate how this improved solution feasibly might be approximated. Our discussion will be confined primarily to the trunk highway problem where the services provided are for more or less continuous movement of people or goods rather than for “access”—the primary purpose of many city streets and rural roads. Our general conception of the problem is not unlike others that already have been formulated. At best, we may suggest a few new devices that could aid in making the general basic method of solution work more satisfactorily.

¹ U.S. Bureau of Public Roads figures show, for example, the following relevant magnitudes for selected years:

	Vehicle Miles Traveled (Billions)	Motor Vehicle Registrations (Millions)	TOTAL HIGHWAY CONSTRUCTION EXPENDITURES	
			In Millions	As % of GNP
1921.....	55	10	\$ 853	1.3
1930.....	206	27	1,516	1.7
1940.....	302	32	1,302	1.3
1950.....	457	49	2,272	.8
1954.....	557	58	3,729	1.0
1965 (forecast)	814	81	—	—

The 1965 figures are projections by the Clay Committee (the President's Advisory Committee on a National Highway Program, *A Ten-Year National Highway Program*, Washington, January 1955, pp. 8, 9). The Clay report contains a useful sketch of the U.S. highway system and its development (pp. 4-7).

It is possible that adoption of the principles outlined below would result in improvement of the highway system at the cost of still lower levels of such other public services as education which are of greater value at the margin than are highway services. This might be the outcome if the public thought that total tax collections, including highway revenues, should be a constant, and if adoption of our proposals led to increased expenditures for highways. Such a public view of tax collections would be irrational. Furthermore, both public attitudes toward highway taxes and the institutional arrangements for state highway financing (e.g., earmarking and, ordinarily, separate handling in the legislative process) suggest that the public recognizes the "price-like" nature of highway user taxes.

Even assuming that the view of tax collections as a constant were prevalent, the outcome suggested is not at all certain. It is possible that merely reallocating the present amount of highway revenues would accomplish the outcome we seek. To be sure, recent estimates suggest that the quantity of services that would clear the market requires more than reallocation, but available data are not in a form which permits conclusive judgments on this score.

To reduce the highway problem to manageable terms, we are taking a highly simplified view of the highway system and its traffic—of the many different kinds of roads, vehicles, and traffic patterns that exist and are possible. However, this simplification should not affect the basic validity of our proposals. Much of the need for simplification arises from the lack of basic data required to describe important relations accurately. One of the first steps in solving the highway problem should be to develop the data that will permit ascertaining what people are willing to give up and what they have to give up for better highways.

II. The Nature of the Highway Problem

Highway services, like the services of public parks and public schools, traditionally have not been marketed in the United States—with the exception of services of the turnpikes of the early nineteenth century and the relatively limited mileage of toll roads constructed during the past two decades. Charges to vehicle users have been made. But these have been primarily fees for the privilege of operating a vehicle and taxes upon motor fuels. The charge schedule has not been in accordance with the absolute costs imposed by vehicles of given types, and frequently charges and costs have not been ranked in the same way. Some vehicles imposing given costs have been charged more than other vehicles imposing higher costs. Similarly, highway facilities have not been supplied in accordance with the relationship between revenues and costs that would guide private producers. The result,

as any economist would expect, is that for some of our highway system there is excess demand for the services provided by the system. And for some of the system, particularly rural roads, there probably is excess supply—although the cases of excess supply are only infrequently called to public attention.

Evidence of excess demand is somewhat difficult to establish. Economists mean by excess demand that at a given price the quantity demanded exceeds the quantity supplied. Queues form or some other rationing device besides price is employed to allocate the service. In the case of highways, the quality of the service offered simply has deteriorated: there is traffic congestion with associated slow speed; there are relatively high accident frequencies; and auto maintenance (or construction) costs probably are excessive. Perhaps no one is standing in line to buy the services of the existing highway system at the price being charged. The services that people would be willing to buy at higher prices do not exist except for the toll roads and a few public roads, some of which have been overbuilt.

Excess demand to any economist implies only one thing: the price is too low. Raise the charges levied against highway users and there would be less use of the highways. Even though the highway system remained as it is, less deterioration, less congestion, and greater safety would be the result. Such a move would increase economic welfare, in the Pareto sense, and we would support it. However, without raising the amounts spent by highway users, excess demand also can be cured by drawing on the general taxpayer to increase the supply—as some auto manufacturers and the American Automobile Association will testify. Also, supply might be improved by leaving the basic charge schedule unaltered and changing the allocation of highway expenditures. To determine to what extent charges and the supply of services should be altered, we must cast the demand and supply of highway services in terms which conform to the economists' model and then demonstrate that a solution based on such a model is a reasonable one.

To demonstrate that a shortage or surplus of highway services is like a shortage or surplus of steel or shoes and should be treated in a similar way requires showing both that highway users do not impose costs upon other people which these other people could not recover through the market and that other people do not receive benefits from highway use for which highway users could not collect through the market. The costs that highway use might impose upon nonusers have received little attention and therefore have been presumed as small. A few farmers may have argued that the presence of highways with cars traversing them has increased the poultry mortality rate; recently it has been suggested that auto exhaust gases are a possible cause of

lung cancer; and industries in "smog" areas have not neglected to point out that burning gasoline also results in the formation of carbon compounds that pollute the air. Most attention has been focused on the alleged benefits of highways to persons who do not use them.

It has been argued that because better highways reduce the prices that consumers pay for certain goods and also reduce the costs to the military for providing a given level of national defense, a portion of highway costs should be borne by persons not directly using the highways. That highways may cut transportation costs undoubtedly is true; but this truth does not warrant special taxes for highway purposes levied against persons who do not use the highways. Insofar as truckers pay for using the highways, those persons not directly using the highways can help pay highway costs indirectly through the price system. If appropriate charges for highway use were levied against the military, nonusers would also pay indirectly for the highways from general tax funds spent by the military for highway services. The alleged benefits of highways to those who do not use them directly are primarily illusions arising from failure to charge highway users appropriately for the services provided by the highway system.

If one had proved that highway users should pay highway costs, this would not be sufficient to warrant pricing highway services in the same way as other goods and services naturally produced in a competitive market are priced. While the amount of highway services consumed by any user may not affect the utility of a nonuser, the utility of other users may be affected. The utility of the typical user of the highway system is dependent upon the degree to which the system is congested. Thus, one condition for pricing in accordance with the usual notions of production costs is violated.

However, this does not mean that the price mechanism may not be used to ration highway services and to provide information that is highly useful in directing production of these services. It means that pricing might take into consideration the disutility of congestion as well as the costs of constructing, maintaining, and policing various parts of the system.

III. Toward a Better Means for Solving the Problem

If it can be agreed that the costs imposed upon nonusers and the benefits accruing to nonusers in the provision of highway services are of relatively minor importance, then highway construction, maintenance, etc., should be paid for by charges levied against users; charges to any user should be equal to the costs that he imposes upon the system when demand and supply are equal (such costs will vary with the

characteristics of the highway, the vehicle, and the way in which the vehicle is operated); and to each separate portion of the highway system should be imputed revenues equivalent to the payments that would have been made for the use of that portion if tolls equal to the established prices had been charged. Such revenues will depend upon the number of miles traveled by vehicles of each type during the specified time period.

Such a general statement of how the highway system ought to be operated would probably be approved by most economists. Several who have given considerable thought to the highway problem agree that highway services should be priced in much the same manner as other services would be priced in a competitive market.² Such prices should guide highway users in choosing from among various vehicle types and from among various highways. They would also provide a better guide to choice from among various types of transport—railway, highway, air, or water. Furthermore, the prices can guide highway administrators in their decisions as to where to build various kinds of highways, at what levels to maintain various segments of the system, etc.

However, even if it were feasible to collect from each highway user precisely in accordance with the amount of services used, the problem of deciding precisely what prices should be charged for each of the various kinds of services would prove to be a difficult one to solve. While we offer no solution to this problem, some of the important considerations in obtaining a solution are discussed below.

The Demand for Highway Services. The utility of highway services is assumed to be dependent upon such factors as the kind of vehicle driven, the speed of travel, the distance traveled, fuel and maintenance costs per unit of distance, the inherent safety of the highway at various speeds and the passengers' comfort. A truck operator's utility varies directly with the size of the load, speed, and safety and inversely with fuel and maintenance costs per mile. A passenger vehicle operator's utility also varies directly with speed and safety. He prefers a smooth road to a rough one and interesting terrain to dull terrain, and his utility also varies inversely with fuel and maintenance costs per mile. He has no interest in traveling in vehicles that are not designed primarily for passenger use. Thus we might say that one kind of highway service differs from another with respect to the kind of vehicle driven, the speed at which the vehicle can be operated with a given probability

² See, for example, James M. Buchanan, "The Pricing of Highway Services," *National Tax Journal*, June, 1952, pp. 97-106; Dick Netzer, "Money and Resources for Highways: The Basic Issues" (mimeographed), a paper presented at the Forty-Eighth Annual Conference on Taxation of the National Tax Association, Detroit, October 18, 1955; and James C. Nelson, "Pricing of Highway, Road and Street Services" (mimeographed).

of accident, and the comfort associated with the passage. Distance traveled on the highway with given characteristics is the measure of the quantity of the service used.

If the utility of highway users depends upon the factors listed above and highway users had opportunities to register their preferences through a market in which various amounts of different services were available, it should be possible—in principle—to describe the prices that the population would be willing to pay for different amounts of the various services. However, except for toll roads, the prices charged for different highway services cannot be varied. Because of this, it will be difficult to obtain an accurate estimate of the demand for these services. This need not pose difficulties if the rule, "price should equal marginal cost and the quantity of service demanded should equal the quantity of service supplied," could be invoked and were applicable. However, the cost of congestion on the consumption side of the picture and indivisibilities on the production side have raised doubts as to whether this rule is applicable.

The Costs of Highway Services. Although many students of the highway problem agree that highway users should be charged in accordance with the costs they impose, they do not all agree on how road costs ought to be allocated and hence what prices ought to be established. The problem contains elements of the well-known difficulty of a decreasing cost industry where, if prices were established equal to marginal costs, total receipts would be less than total costs. If prices were set equal to average costs, too little of the service would be used. In such cases, charges for the privilege of using the system and prices equal to marginal costs have been considered a desirable solution. However, in the case of highways, what constitutes the marginal costs of any amount of any service is far from settled.

Let us somewhat arbitrarily divide total highway costs into initial construction costs, maintenance costs, and administrative costs. Obviously, it is desirable to minimize over a given period of time the sum of these costs for any given amount of a particular highway service provided; i.e., to make construction cost, including interest charges, plus maintenance cost plus administrative cost (including the cost of enforcing safety regulations) as small as possible for any given traffic pattern—a traffic pattern being defined, for example, as a given collection of vehicles of various types traveling at a given speed and with a given probability of accident.

From available engineering information and resource prices, one can obtain estimates of the minimum costs of constructing and maintaining roads that will carry various traffic patterns. The physical relations suggest that axle load is the important variable in determin-

ing cost. The relationship between cost and axle load is not linear. For example, the minimum cost of maintaining and constructing a road that will carry n 5,000-pound axle loads at a given speed, safety, and so forth might be $\frac{1}{4}$ that for a road that will carry n 10,000-pound axle loads at the same speed, with the same safety, etc. Thus the minimum cost of carrying a 10,000-pound axle load would be four times that of carrying a 5,000-pound load. (See, for example, *Technical Supplement to Highway Use and Highway Costs*, A Report of the Joint State Government Commission to the General Assembly of the Commonwealth of Pennsylvania, Session of 1953, particularly pages 15-18.)

The relationship between total costs and the number of passages is also nonlinear; i.e., the minimum cost of providing a highway that will carry $2n$ axle loads at a given speed, safety, etc., is not necessarily twice that of providing a highway that will carry n axle loads at the same speed, safety, etc. For some n , the minimum cost exceeds $\frac{1}{2}$ that of $2n$; for others it is less than $\frac{1}{2}$; and for still others it is $\frac{1}{2}$.

This is precisely what one would expect because of indivisibilities. Highway construction costs in a given area—except for such items as the cost of right-of-way—are approximately a linear function of the number of traffic lanes and hence approximately a linear function of a standard number of axle loads, this standard number being the maximum that can be carried by a two-lane highway at the specified speed, safety, etc.

If these assumptions regarding the relationship between costs and other factors are reasonable, the charge levied against any given vehicle in principle could be proportionate to the distance traveled. Charges for one type of vehicle as compared with another could be proportionate to the costs imposed by the two types of vehicles. Each section of the highway conceivably could be credited with the charges levied against the vehicles using it. The problem is whether prices established for highway use and rules for highway development that are based upon the imputed revenues and costs of any sector of the highway could be formulated so that the development of the highway system would be optimal. An optimal development would be one such that any additional expansion would cost more than it is worth to highway users and that any further deterioration would cut costs by less than it cuts the value of the services to consumers.

As can be inferred from the previous comments, it is our belief that price ratios per unit of distance traveled by vehicles of various classes can be approximated. Perhaps this cannot be accomplished with existing data, but the data could be obtained. It is not clear that one can establish absolute prices that will lead to appropriate use and development of the highway system, particularly if such prices are to

serve as a basis for decisions with respect to expansion and contraction of the highway system. However, it is our conjecture that prices and rules for expansion and contraction can be formulated which will result in near optimal use and development, and we offer the following example as evidence.

Assume that all vehicles are of one type and that any highway is constructed so that when the number of vehicles using it per hour (n) is kn_1 or less (where k is an integer) the quality of the service (as measured by speed, safety, etc.) is not less than q . For example, if $n_1 = 600$ and $k = 1$, the highway is constructed to carry 600 cars per hour at, say, a speed of 50 miles per hour with a probability of accident not more than, say, 0.000001 per mile traveled. If $k = 2$, the highway is constructed to carry 1,200 cars per hour at the same speed and safety, etc. Assume also that the total cost per mile of construction is kC ; i.e., that a mile of four-lane highway costs twice as much as a mile of two-lane, a mile of six-lane highway costs three times as much as a mile of two-lane, and so on.

In such a situation, if $n = kn_1$, nothing should be done (provided, of course, that the relationship between the qualities of services demanded and the costs of supplying the various qualities of service are appropriate). If $n > kn$, either the capacity of the highway must be expanded or the quality of the service will be kept below standard. If $n < kn_1$, the highway's capacity should be contracted, if feasible.

Assume that the price is established which, if $n = kn_1$, will make total revenue equal to total cost (including interest charges and charges for maintenance). If n is greater than kn , the highway will show a profit while if n is less than kn_1 , it will show a loss. Either the volume of traffic carried relative to capacity or the revenue relative to the cost should be used as a guide to how to develop or deteriorate the highway. Our suggested rule in terms of traffic is as follows:

$$\frac{k}{k + 1/2} \leq \frac{n}{n_1} \leq \frac{k}{k - 1/2} \text{ where } k \text{ is the variable that can be chosen.}$$

In literary terms, add two traffic lanes as long as the load exceeds capacity by at least $1/2$ of the capacity of two lanes; let two traffic lanes deteriorate as long as the load is less than capacity by at least $1/2$ of the capacity of two lanes.³ For $1 > \frac{n}{n_1} > \frac{k}{k + 1/2}$, the road probably should be permitted to depreciate, thereby reducing cost and eventually the quality of the service. For $1 < \frac{n}{n_1} < \frac{k}{k - 1/2}$, additional maintenance costs will, and should, be incurred.

³ This rule is similar to that proposed by Abba P. Lerner. See *The Economics of Control*, Chap. 16.

The fact that there are many types of vehicles does not alter the applicability of our principle, since a vehicle of any given type can be converted into the equivalent of a certain number of vehicles of any standard type. The fact that there are many different types of roads, in terms of the quality of service offered, means that ideally there should be many different prices.

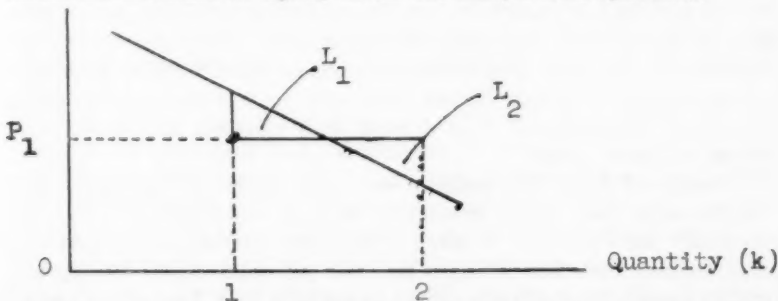
The kind of outcome that we desire and believe would be obtained by application of our principle vaguely resembles the kind of outcome that has been obtained from our present methods of development. For example, when a road is heavily congested and has no bottlenecks, its capacity usually is expanded by adding lanes. Usually a little used highway is allowed to deteriorate, etc.

The dissimilarities between the present system and the outcome we seek are the result of failure to establish the appropriate charges to the different highway users and to alter the highway system more precisely in accordance with the proposed rule.

IV. Practical Problems in Improving the Highway System

Collecting from Highway Users. Even if the problems of how ideally to price highway services and to alter the highway system already were solved, we would not find it feasible to collect from each highway user exactly in accordance with the amount of each highway service used. Nor could we impute exactly the revenues attributable to each

The number $\frac{1}{2}$ is not a magic number, but neither has it been arbitrarily chosen. Assume that the demand for highway services were linear, as in the figure below.



Only integers (0, 1, 2, etc.) can be supplied. If $k = 1$, the loss from a quantity that is too small is L_1 . The loss from a quantity that is too large is L_2 . Obviously, L_2 will be equal to L_1 if the quantity demanded at price $P_1 = 1.5$. L_2 will be less than L_1 if the quantity demanded at price P_1 exceeds 1.5, etc. If the demand curve is concave toward the origin, $L_1 = L_2$ at $k < 1.5$. In the case of highway services where the quality of the service deteriorates if traffic exceeds the standard capacity of the road, the demand for the standard service would lie to the right of the demand for the service offered. Even though the demand were linear, L_2 would be an overestimate of the loss from expansion. We are assuming that a road with an odd number of lanes is not economic. This is not the case if traffic is continuously or at regular intervals predominately in one direction.

part of the highway system. Collecting from each user in accordance with the amount of service used requires that one observe the bundle of services obtained by the user during the relevant period of time. To obtain such observations for each highway user would be so costly that it is not feasible except on highways with relatively few accesses. (It has been suggested, presumably in jest, that each vehicle should be equipped with a Geiger counter and each highway impregnated with radio-active material, the density of the material varying with the "quality" of the road. At the end of each year, the weighted sum of the miles traveled could be obtained by reading a meter activated by the counter.) Such roads can be, and usually are, toll roads. What is desired is an inexpensive way of approximating what services have been obtained by each user.

Fuel consumption is a sufficiently accurate indicator of distance traveled for a given vehicle. However, if one knew only a user's fuel consumption, he could not identify the type of vehicle, the type of highway on which it was operated, nor the distance traveled. Although different types of vehicles may use different fuels, it would not be administratively feasible nor economic to vary the taxes on different fuels so that the costs imposed by users of different types of vehicles were recovered solely through charges on motor fuels.

The Passenger Car. For passenger cars it is feasible to collect for virtually all costs for the standard highway service by means of the gasoline tax. Drivers of light, low-horsepower cars will pay less for a given quantity of service than drivers of heavier cars. But such a disparity is a relatively minor one. Licensing might be employed to collect for the privilege of using city streets—a service which we do not propose to discuss here. Licensing of the passenger car used only on the highways is desirable largely for purposes of identification. Logically, the fee for such a license should cover only the cost of issuance, unless it can be demonstrated that a peak load problem also exists with respect to trunk roads.

Trucks and Buses. For vehicles with axle weights exceeding those of the passenger car, charges in addition to those recovered by fuels taxes generally are desirable. It already has been stated that engineering data suggest that these charges per axle per mile should be approximately proportionate to the square of the axle load. However, to minimize the administrative cost of making reasonably certain that the user is operating the type of vehicle for which he has paid charges, the number of axle load classes cannot be infinite. The number of classes chosen is arbitrary. Since there will be an incentive for vehicle owners to choose axle weights near the upper limit of any class interval, relative charges probably should be based upon relative costs imposed

by weights near this upper limit. Ohio's axle-mile tax, enacted in 1953, bears some resemblance to the tax here proposed. The Ohio tax is imposed on the following graduated scale: on trucks with more than two axles, $\frac{1}{2}$ cent per mile; on commercial tractor combinations with a maximum of three axles, 1 cent per mile; 4 axles, $1\frac{1}{2}$ cents; 5 axles, 2 cents; and on commercial tandems, $2\frac{1}{2}$ cents per mile.

Collections for such additional costs usually have been obtained by license fees or weight-distance taxes. A single license fee for a given vehicle type is not equitable in that it is independent of the number of miles driven. The classification of vehicles according to use—e.g., farm and commercial carriers—might be viewed as an attempt to correct this inequity at least in part. However, even if such a designation were unambiguous, the number of distance classes would be too small to result in equitable charges.

As a means of collecting from users such as truck and bus operators according to miles driven, users might be required to estimate at the beginning of the year the number of miles they intended to drive and make payments accordingly. If during the year the vehicles were operated more than estimated, an additional payment would be due; if operated less than estimated, a rebate would be paid. Such a procedure is more costly to administer than the single fee that is independent of the distance traveled. However, the increased equity would, in our estimate, be worth considerable cost. It might be noted that this procedure is somewhat analogous to that employed in federal income taxation where there are problems of checking discrepancies between actual and estimated income like those that would arise in checking discrepancies between actual and estimated vehicle operation. (The Ohio axle-mile tax requires quarterly reports and payments and permits year-end refunds where mileage falls short of the amounts reported.)

Toll Roads. Thus far our remarks have been concerned only with charges for something that one might call a "standard" highway service. If feasible, provision should be made for extra charges for services that exceed the standard in quality and for payments to highway users for services that are below the standard. The toll road offers opportunity for collecting for services exceeding the standard. Toll roads are able to command premiums over free roads because they offer services of greater utility to users than those available from alternative free roads. There are no corresponding opportunities for consumers to pay less than they do on free roads for services of less utility than those available from the free roads.

Insofar as the revenues of toll roads are calculated in terms of tolls alone and decisions on whether or not to build a toll road are made by

comparing tolls and expected costs, the resulting mileage of toll highways will tend to fall short of the optimum. Revenues should be paid by the government to the owners of toll roads in accordance with the procedure elaborated below for imputing revenues to various portions of the highway system. Such payments are economic from the standpoint of highway users in that the cost of providing an equivalent capacity of the standard highway service on toll-free roads generally would be at least as much as the payments to the owners of the toll roads. If such payments were made, the revenue to a toll road would be larger relative to cost than currently is the case, and an expansion in toll roads is the expected result—provided that there are no artificial barriers to entry.

Many highway situations present the opportunity for monopoly exploitation if the highway is operated as a toll road. If it were not for these monopoly possibilities, it might be argued that anyone should be permitted to construct and operate a toll road, although lack of eminent domain would presumably deter all except governmental agencies from doing so. In the event that the demand for the services of a toll road is overestimated, it is conceptually possible to make some tolls negative; i.e., that payments to a highway user together with the government's payments to the road owner from user taxes would maximize the owner's revenue. Such negative tolls would promote more rapid depreciation of the road and hence more rapid salvage of an uneconomic investment than would be possible on a free road.

Imputed Revenues. Just as it is not feasible to collect from each highway user precisely in accordance with the amount of services he receives, it is also not feasible to impute to each section of the highway system an amount of revenue precisely in accordance with the traffic pattern that it carries. However, for a relatively low cost, inequities among different portions of the highway system can be made relatively small.

To estimate the actual traffic patterns would require samples of the same general nature as the traffic counts that have been made by various parts of the highway administration. How much larger and more detailed than the existing traffic counts such samples should be depends upon sampling costs and the values of various degrees of accuracy.

It also would be possible to "pay" various highways according to the characteristics of the road. Thus, while a highway user would not be billed according to the amount that he used each type of highway (except for toll roads) and would not make his choices subject to prices, payments to various sections of the highway could be varied according to the characteristics of the road. If rates of payment ac-

curately reflected consumer preferences, such a procedure would aid in eventually developing the highway system along lines that we would consider to be optimal. Accurate estimates of consumer preferences would be very difficult to obtain. However, rates of payment could vary with the minimum costs per passage of a vehicle over highways of different kinds.

Standard costs should be established to encourage efficiency in construction and maintenance.

Jurisdictional Problems. In our discussion we have ignored those problems that arise out of the existence of many separate governmental units each having some control over the charges levied against highway users and the construction, maintenance, and policing of the highway system. Our proposals would be more feasible if there were a single taxing and revenue-allocating authority.

The existence of separate jurisdictional units operating as they have in the United States makes it possible for a highway user to pay fees to one unit and use the services provided by another unit. Trucks or passenger cars licensed in one state or buying motor fuel in one state and traveling in another are commonplace. Such possibilities reduce the correspondence between highway use and imputation for services received. Some states have attempted to collect from some out-of-state users by requiring that commercial vehicles operating in the state also bear the state's license plates. Others have suggested weight-distance taxes on out-of-state vehicles. Neither procedure is completely satisfactory.

We believe that the objectives we propose would be more readily achieved if the federal government collected the basic motor fuel and axle-mile taxes; i.e., those taxes designed to collect from users in accordance with the amount of service used. The federal government or a joint federal-state agency could be set up to determine payments to the states in accordance with the state's traffic pattern and types of highways. The role of this agency would be essentially that of a bookkeeper rather than a dictator as to where highways should be constructed, what kinds should be built, etc. This bookkeeping role would reduce the existing gap between the service obtained in any unit and the payments made to that unit. States and local governments would be permitted to license vehicles and levy supplementary user taxes, if they wished to have a higher quality of highway service than they could support from their national allocation.

Although the existence of separate state and local governments making decisions with respect to the construction and maintenance of the highway system has some disadvantages, this institutional setting may actually be advantageous in that it can simulate a more

competitive "market" and thereby encourage efficient decisions with respect to highways. Payments to each state are to be based on the minimum cost of carrying a given traffic pattern on a given type of highway. If the state's highway administration is inefficient, the service cannot be provided without additional funds. Pressure from taxpayers would encourage changes in the procedures employed by the administration.

If substandard service is provided by one state and alternative routes through other states are available providing a higher quality service, the better highways will carry more traffic and receive larger revenues. Comparisons between revenues and costs on different types of highways will permit adjustment of the quality of highway service as well as highway capacity toward what we have defined as optimal.

V. Financing the Gap in Highway Construction

Taxes Versus Borrowing. If highway construction activities proceed at a more or less steady pace in step with highway use and if motor vehicle taxes are properly geared to such use, no major problem of tax-versus-debt financing arises. Highway user taxes would, by and large, produce enough revenues to cover both maintenance and new construction. But the problem clearly does arise if a "bulge" in highway construction is required in the next few years to modernize or expand our highway system.

Controversy over the magnitude of the "catching-up" problem revolves around the Clay Committee figures. On the basis of engineering estimates, they showed a ten-year need for highway construction of 101 billion dollars, about one-fourth of it on the interstate system (to bring it to 1974 levels in 1964). Under existing programs, it was estimated that 47 billion dollars would be available for this work, leaving a gap of 54 billion.⁴ This gap figure has been widely criticized as overstating economic need and understating revenues. For example, Netzer estimates needs at 70 billion dollars and available revenues at 60 billion, leaving a 10 billion gap (*op. cit.*, pages 10-13). Yale Brozen, contending that an interest rate of at least 10 per cent rather than the customary 2 or 3 per cent should be used in calculating the economic feasibility of road projects, takes the extreme position that no additional taxes or borrowing are necessary to improve our roads to desirable levels (mimeographed paper, "Some Tentative Considerations Concerning the Highway Problem," Northwestern University, 1955). Our conjecture is that bringing the nation's highways up to par according to the principles we have outlined (which imply redressing of the

⁴ President's Advisory Committee, *op. cit.*, pp. 17, 18. The details are presented in House Document No. 120, 84th Congress, 1st Session, *Needs of the Highway Systems, 1955-54*, Letter from the Secretary of Commerce, March 28, 1955, Washington, D.C.

balance between overbuilt and underbuilt parts of the road system and, very probably, some expansion in the aggregate) involves a gap much closer to the Netzer than the Clay or Brozen estimates.

Given a gap, how do we choose among the three alternative ways of handling it; namely, stepping up user revenues temporarily, drawing on general revenues now and "repaying" them later, and borrowing? The first alternative can be dismissed rather quickly on grounds that it is unfair to charge the current generation of highway users for benefits that will accrue primarily to succeeding generations. But to resolve the choice between the other two requires us to consider issues of budgetary discipline, the proper "mix" of monetary and fiscal policies, and our preferences as to levels of consumption and investment (since one or the other, or both must give ground to free resources for stepped-up highway development).

Emphasis on budgetary discipline, i.e., the rule that an increment in expenditure is to be matched by an increment in taxes, might seem to imply drawing on general taxes in order to avoid loose spending out of the "easy money" from borrowing. But this overlooks the fact that highway spending would have its own discipline if it followed appropriate costing and pricing principles. As in the case of privately-produced goods and services, the market mechanism would provide a direct linkage of cost and benefit, with consequent self-disciplining of expenditures.

Budgetary discipline or no, it has been argued that borrowing is still ruled out in a prospectively taut economy lest government fiscal operations promote inflation. This implies doubts about the potency of central banking policies, or about our willingness and institutional capacity to make full use of them, or perhaps about the distributional effects of higher interest rates versus higher taxes. If these doubts are justified, it may be best to "borrow" from general revenues when inflation threatens rather than turning to the money markets for highway funds. But if, as we believe, central banking controls and fiscal controls are, within rather broad limits, effective substitutes for each other in containing inflation (and if our income-distribution preferences can be realized through proper structuring of taxes and expenditures), then the choice between taxes and borrowing for financing the highway construction bulge need not be dictated by the requirements of economic stability. The choice can be made in accordance with our consumption-investment preferences.

If, given full employment, the nation wishes to increase its rate of capital formation in the interests of faster economic growth, the choice would be for tax financing. The resources drawn from the private economy through taxation would come predominantly at the expense

of consumption. If national preferences indicated that private investment should be displaced to make way for added highway investment, the choice would be for borrowing from nonbanking sources.⁵

In other words, we offer no categorical imperative on how to finance the gap-closing operation on our highway system. Essentially, the problem should be resolved in the broad context of Samuelson's "happy triad"; namely, that we have it within our fiscal-monetary power to combine with inflation-free full employment both whatever rate of capital formation we desire for economic growth and whatever degree of income-redistributing taxation we desire for social justice purposes.⁶ The point is to get the right mix of surplus or deficit, monetary stimulus or restraint, and tax structure to accomplish the desired result. In short, the decision on tax-versus-debt financing of the nonrecurrent part of highway construction should be resolved by reference to the nation's goals as to capital formation and the correctness of existing fiscal-monetary measures to achieve those goals.

Separate Accounting. But whether the decision is to borrow from general revenues or borrow from the public, in either case it follows from the approach taken in this paper that a rigorous system of separate highway accounting should be established. A distinct highway account—not removed from Congressional and Budget Bureau purview but nonetheless sharply differentiated from the accounts relating to functions supported out of the general revenue—is required to carry out the rule that highway users pay the highway bills. Its receipts would be drawn from user taxes, user charges against government agencies making special demands on highways not reflected in current use (as for defense purposes), and borrowing from general revenues or borrowing from the public. The account should be balanced in the long run; i.e., any debt and carrying charges required to finance highway expansion should be repaid from highway revenues.

Though this account has some of the earmarks of capital budgeting,

⁵ Of course, this is not to say that taxes curtail only consumption while nonbank borrowing curtails only private investment. Musgrave, for example, estimates that 1 billion dollar reduction in federal taxes would increase consumption by about 750 millions if effected by a flat 3 per cent cut in all bracket rates of the individual income tax, by about 825 millions if the cut were in excise taxes (unless there were money illusion, in which case it might be close to 1 billion), and about 500 million if the cut were in the corporation income tax. (Richard A. Musgrave, "The Incidence of the Tax Structure and Its Effects on Consumption," Joint Committee on the Economic Report, *Federal Tax Policy for Economic Growth and Stability*, Washington, D.C., November 9, 1955, pp. 104-105.) In the case of borrowing, the rise in interest rate necessary to draw the required investment funds from private uses would presumably provide some stimulus for saving and consequently some reduction in consumption.

⁶ Paul A. Samuelson, "The New Look in Tax and Fiscal Policy," *ibid.*, pp. 229-234. If, for example, national policy called for stimulation of additional investment through low interest rates and other credit-expanding measures, side by side with strongly redistributive taxation, an increase in the level of taxes to produce a sizable budget surplus would be necessary to contain inflation.

we are not suggesting that the complicated issue of the capital budget in the United States be resolved in terms of the highway problem.⁷ We merely suggest that a separate account is a logical concomitant of the pricing approach we have suggested. We submit in addition, however, that a distinct "trading account"⁸ for highways would have two important incidental advantages: it would promote accurate cost accounting by making all costs explicit, particularly interest and depreciation; by splitting highway decisions off from decisions relating to education, health, and other functions supported from general revenues, it would minimize the danger of expanding highways at the expense of those functions.

VI. Concluding Comments

Highways play no unique role in economic growth, but it is essential that means of transport be properly priced so as to avoid overallocation or underallocation of resources to transport services as a whole, to particular forms of transport, or to particular segments of any given form. The highway problem is unlike, say, the education program, where optimum investment in terms of economic growth must deal with indirect, intangible, and third-party benefits calling for government support from the general revenues and where, therefore, considered judgment rather than precise measurement is involved in making decisions as to the scale and pattern of production that will yield the optimal resource allocation. We have attempted to show that the highway problem should and can be resolved by government primarily in terms of the pricing process reflecting direct costs and direct benefits.

We have suggested modifications in the methods of charging highway users (e.g., axle-mile taxes payable on an estimate-subject-to-correction basis), allocating basic user revenues (federal allocation of basic motor vehicle revenues among the states according to actual highway use), and handling the federal highway account (as a distinct account within the federal budget). It should be understood that these modifications are offered to demonstrate how the principles here outlined might be implemented rather than to suggest that we possess the institutional and political acumen to know what policy changes and institutional rearrangements are feasible in practice.

If we believed that closer adherence to the pricing system for highways would draw resources away from government services whose

⁷ A detailed discussion of this issue is presented in Walter W. Heller, "An Analysis of Proposals for Capital Budgeting in the United States," dittoed memorandum for the Committee for Economic Development, Washington, D.C., October 5, 1954.

⁸ This is the term used by J. R. Hicks in *The Problem of Budgetary Reform* (Oxford, 1948), which discusses the problem of road accounting on pp. 27-30. See, also, *Budgetary Structure and Classifications of Government Accounts* (United Nations, New York, 1951), especially p. 16.

needs are even more dire than those of the highway system (because willingness to pay will presumably be greater where a clear and direct cost-benefit nexus exists than where there is no direct link between the individual's taxes and his government benefits), we should be uneasy about the approach we have proposed. But three considerations reassure us on this score: (1) highway expenditures and taxes already seem to be largely compartmentalized and insulated from general budget decisions at the state level, and separate accounting could accomplish much the same result at the federal level, with the result that decisions to expand highways need not be contingent on decisions to restrict expansion of schools, foreign aid, and the like; (2) as a corollary of the first point, substitution of price discipline for budget discipline is likely to draw resources mainly from other priced, i.e., primarily nongovernmental, services; and (3) pricing and charging according to use would, we believe, substantially shrink the "need" for highway construction as recently defined by the Clay Committee and the Bureau of Public Roads.

DISCUSSION

HAROLD M. GROVES: With much of what the authors have said in their very stimulating paper I am in hearty agreement. It is agreed that users should pay all or most of the cost of the highway system; that the motor fuel and license taxes are not adequate in their differentiation of charges among vehicles; that we should move in the direction of a more precise correlation of user charges and user benefits.

My reservations are related to the fact, so it seems, that the authors have abstracted from or simplified out of or ignored a very large part of our problem.

As I understand them, their thesis is that highways should be paid for on a fee-for-service basis; that this will substitute the discipline of the price system for that of budgetary rationing; and that this will justify borrowing from other taxes to the extent that the program is self-liquidating. It is conceded that only in the case of a relatively few roads is it possible to apply the fee principle directly; but by federal collection of basic taxes and allocation of revenue to roads according to traffic much the same objective can be accomplished.

The analysis abstracts from the problem of so-called "access roads" for the use of which highway-user taxes are to be collected. What will happen to this revenue in allocation is not specified. Access roads are not defined but I gather that they include a very large proportion of city streets on which a very large proportion of traffic occurs.

The analysis ignores the fact that a very large part of the highway system is and apparently must be operated at a profit or loss, so to speak. Again I come back to the city streets which certainly carry a larger proportion of total traffic than the proportion of highway-user tax revenues that can suitably be expended upon those streets.

But there are also other roads that should operate at a profit in order to cover the deficit on other highways where traffic cannot support the warranted degree of their development. These lesser roads are of interest to all motorists on the principle of readiness to serve. There are multitudes of people who in any given year use the intercity highway system very little if at all. Yet any one of these people may take it into his head to take a vacation in some far removed spot or to visit relatives across the continent. In short, every motorist has a very considerable interest in the development of roads he may use once in a lifetime or never.

It is worth mentioning, also, that utilities, public and private, while they aim to cover costs, depart frequently and widely from cost-pricing in their charges for specific components of their services.

The authors' analysis largely ignores the fact that the demand for highways is a derived demand depending in some part on the cost of owning automobiles, and that a factor in this picture is the general taxes that automobiles as wealth and perhaps highways as wealth should contribute to the general

fund of government. Not until we have worked out a basis for neutrality in this area can we have neutrality among competing transportation agencies or ignore the discipline of the budget.

Recently I heard the suggestion in jest that the federal income tax law be amended to allow each person who does not own a car a \$100 income tax credit. The objective would be to reduce the parking and congestion problems that now beset us. What worries me is that possibly we have been doing the exact opposite of this suggestion and (in effect) are giving the car owner a \$100 bonus for creating these problems. It will be recalled in this connection that the motor vehicle creates many public costs outside of highways. The problem of school children and of motor vehicles is a principal concern of every city council. Do all of these special costs get allocated to the motorist so that consumers' decisions between automobiles and houses, for instance, are based on a fair division of costs?

Having abstracted themselves from a considerable part of their problem, the authors come out with a neat toll system without its administrative problem thus avoiding budgetary rationing both as to current outlay and debt. But I think there is much more than administrative difficulties that stand in the way of the application of a fee system to all highways. Accordingly I doubt that we can rely on price discipline to do all our budgetary and debt rationing.

The benefit principle provides a general justification for certain taxes in certain circumstances, but it provides no basis for collecting from the beneficiaries in nice proportion to their benefits. We use taxation rather than direct charges to finance most governmental services precisely because indirect benefits are important in this area; highways have sometimes been thought to be an exception because they afford a large measure of accountable direct benefit for which it is possible to collect with some degree of precision, albeit a low one. But we cannot get away from indirect benefits—hence taxes—even here.

It could be argued of course that every citizen has an interest in what the authors call access highways and that this justifies the use of general taxes to support roads. But this is not the inevitable conclusion. Some motorists receive benefits from highways by direct use, some receive them indirectly in the form of readiness to serve, and some (along with others) receive them indirectly in the form of goods and services that they procure over the highways. As the authors observe, there is inevitably some indirect charge for indirect benefits of the latter type. To maintain neutrality among competing forms of transportation, it seems better to assess the road bill to motorists; the cost of railroad service is all paid by shippers and travelers even though others benefit (and pay) indirectly.

The readiness-to-serve principle may seem to lend some logical support for the motor vehicle license tax and indeed it is often invoked to support this form of levy. But again this is not an inevitable conclusion. Extensive use of a vehicle may be as good a guide to an interest in an improved highway system (as a whole) as the mere ownership of a vehicle.

One further point relates to unneutrality among vehicles. As someone has

phrased it: "Certainly some common unit of highway service is needed when we have vehicles ranging from 2,000 pounds to 76,000 pounds and traveling from 5,000 to 100,000 miles per year on our highways."

As I understand the authors, they propose to use the factors of distance and axle loads as a basis of differentiation. The importance of axle load is that it is related to the incremental costs of building highways for the heavier vehicles. While I have not covered all of the evidence, I am skeptical of this approach on the ground that it rests on less than fully established evidence and anyway does not give a complete answer because of indivisible costs. A wear-and-tear cost approach appears more substantial. But we may recall that even if highways could be built without extra cost to accommodate trucks as well as automobiles and even if once properly built their depreciation would be independent of the kind and degree of traffic that goes over them, we would still have an apportionment problem. Trucks should still pay more than automobiles because they use more space and/or carry more weight. Thus we need a benefit unit to apportion joint costs, and the ton-mile while certainly not perfect may be as good as starting point as any.

It is said that in public finance the best that one can hope for is rough justice. And one could add: "rough economics."

JAMES C. NELSON: Almost everyone will concur in Professors Heller's and Brownlee's thesis that "the highway system in the United States is not optimal." Wide agreement exists among economists and engineers that highways are often underdeveloped where the traffic demands are the heaviest and overdeveloped where the traffic demands are light. Thus highways and highway investment are not making their maximum economic contribution to general economic development. And because the method of pricing highway services is seriously deficient, past and present highway development may also have created obstacles to adequate private investment in the railways. Hence it is a welcome sign that general economists as well as the specialists have become interested in the requirements for progress in highway pricing and development. Of even greater significance is the high interest currently displayed in the allocation problem compared with the concentration on fiscal policy aspects of highways during the Great Depression.

Professors Heller and Brownlee place appropriate emphasis upon the desirability of applying the market price mechanism in the provision of highway services, although recognizing demand and cost difficulties in the way of working out systematic structures and levels of highway-user fees as prices. Here, however, is the precise focal point of the issues over highway development and financing. Because roads in the Western nations developed rather naturally as one of the general functions of organized governments, the tradition of thinking of roads in terms of benefits rather than in terms of effective demand is firmly rooted. Thus, many engineers and some economists are still immersed in studies seeking to segregate the benefits that are accorded by highways to highway users (direct benefits) and those that are accorded to nonusers (indirect benefits). The corollary they try to establish is that some considerable part of the demand for highway service is by nonusers who should

therefore pay a corresponding portion of the aggregate costs, even in the case of principal highways. This is often tantamount to supporting investments greater than effective demand would justify if the ordinary rules of private markets were observed. And assignment of highway costs to indirect beneficiaries also results in a subsidy for highway users, the direct and market-sense beneficiaries of highway improvement.

Some experience in the state legislative arena has convinced this discussant that until highway administrators and other interested groups can be brought into agreement that at least the main highways designed for mass transport should be priced and developed under appropriate market concepts, rapid progress toward ideal economic solutions is unlikely. Though interesting as an academic exercise, short-run adjustments in highway service prices to ration demand at peak periods seem largely impracticable. Yet, the greater the area of toll-road development and the greater the progress toward adjusting user fees in accordance with applicable pricing principles, the greater the extent to which highway service prices can function, in time, as a method of rationing demand, of avoiding congestion, and of bringing supply and demand into balance. Moreover, congestion may become so dreadful that people ultimately will accept raising the public prices for highway services at peak periods and on certain choice routes in order to discourage highway use or to encourage the use of circuitous and otherwise inferior routes.

Since toll roads make differentiated pricing in accordance with highway cost variations feasible and also impose far more adequate tests of economic investment than in the case of most toll-free roads, the suggestion made in the main paper that toll-road expansion be extended by paying to toll-road authorities user-fee revenues imputed as earned upon toll roads should receive consideration. The objection that short-haul traffic would then be disadvantaged, to the extent it is valid, could be met by allowing free use of toll facilities for short trips or by maintaining existing parallel highways sufficiently for short trips but not adequately for the through and long-distance trips as those would be accommodated by low-unit cost and high-quality toll highways. The superiority of toll roads, where adequate traffic exists, has already been demonstrated. They can be financed and developed more quickly than equivalent toll-free highways. They provide limited access and qualities of speed and safety more securely than toll-free roads. The willingness of truck and bus lines and many motorists to pay the tolls for those benefits is not a notion of some visionary economist. Moreover, the competition of toll roads has apparently spurred large-scale plans for state and federal development of interstate highways. But the impression is hard to escape that the sponsors of those programs seek highway services comparable to those of toll roads without the limitations of the more rigorous pricing and investment tests of such roads.

Toll roads of four, six, or more lanes obviously cannot be justified throughout the Interstate Highway System. But to the extent that this is true, it would seem equally difficult to justify equivalent standards of toll-free highways under greatly expanded federal aid. The question must be faced whether it is a good use of scarce resources to develop transcontinental highways far

beyond present and future effective traffic demands, especially when the passenger car cannot hope to match the airplane in speed of travel and when circumstantial, if not direct, evidence exists that long-distance freight transport can be hauled with less aggregate cost by railroad. Perhaps what is needed is an expanded capital-development plan for modern long-distance railroads who enjoy no federal aid in straightening their main lines, in reducing line mileage, in lessening gradient, and in installing centralized traffic control that almost doubles the capacity of existing main-line tracks. At least before the nation embarks upon a tremendous federal-aid program for interstate highways, it would be appropriate to consider the promise of better service, lower costs, and lower rates from greater capital investment in the railways over against the results of doubling or tripling the rate of federal investment in highways. A point of considerable significance can be made from recent Congressional experience with highway legislation. When a plan was proposed in the Congress to require highway users to pay in fairly close proportion with highway use as a means of supporting an expanded highway program, there occurred a marked lessening of the great enthusiasm of user groups for a program in 1955. (See testimony of various highway-user groups in *National Highway Program*, Hearings before the House Committee on Public Works on H.R. 4260 and H.R. 7072, Part 2, Washington, July 11-12, 1955; in particular, page 1117.) Evidently, the demand is not so great for large-scale improvement of toll-free interstate highways if appropriate supply prices are established!

Misunderstanding would result if these comments were interpreted to imply that no enlarged highway programs are justifiable. Far from suggesting such a conservative conclusion, I feel that great development is essential. However, much needed interstate highway development could be financed from existing funds if they were apportioned more constructively as between highway systems. Here Professors Heller's and Brownlee's rules for pricing and development could be applied with a greatly raised social product without greater expenditures. More use of toll financing would take care of the extremely dense flows of traffic as rapidly as physically feasible. Though the result would be resisted politically, many highways probably should be allowed to remain as they are with adequate maintenance or in some cases with less maintenance. Where local road services are demanded in qualities greater than present physical development permits, there remains available as in the past the alternative of contributing higher general tax payments or local user fees when the added qualities seem worth the tax costs.

Both the rationing of demand in the case of the heavily traveled and congested highways and investment in such highways could be improved if progress were made in adjustment of user fees as between classes of motor vehicles. But it will probably be a long time before engineers, highway users, legislators, and economists will agree upon the precise ratios and levels of user fees for different classes of vehicles that can yield optimal pricing and highway investment. Now they do not even agree that user fees should be adjusted as prices and that main-highway investment should be limited by effective demand on such prices! However, if some simple adjustments in present user-

fee structures could be legislated into practice, much progress could be obtained even without complete agreement on those basic issues.

Professors Heller and Brownlee have demonstrated that distance traveled by any vehicle measures the quantity of the service used and that the mileage factor should be reflected in the user fee or price structure more adequately than at present. It is abundantly clear that the graduated registration fees typically employed to recover imputed weight-function costs and perhaps some space-occupancy costs are seriously defective in that the payments are not made to rise in proportion to mileage of highway use. It is also easily demonstrated that the same rate of motor fuels tax upon diesel fuel as upon gasoline results in gross underpayments for highway use by diesel-powered vehicles whatever the absolute rates of user payments for a given-size vehicle or combination may be. (James C. Nelson and William H. Dodge, *Financing North Dakota's Highways, Roads and Streets*, a report submitted to the North Dakota Legislative Research Committee, Bismarck, N.D., September 15, 1957, page 246.) So long as mileage is not paid for as it rolls up in those cases, user fees cannot limit highway use by the classes of vehicles imposing the greatest direct and social resource costs upon society. Nor can user fees unrelated to mileage adequately impose the right-of-way costs upon heavy vehicles and combinations which should be reflected in rates if shippers and travelers are to make fully economic choices between road and rail transport. The pity of the situation is that mileage-factor user-fee schedules and diesel differentials in motor fuels tax rates are easily worked out. Though great commotion has been stirred up over the attempts of several states and the Congress (in 1955) to deal with those problems, it should not be overlooked that the means are at hand when legislatures become willing to give priority to logic in their highway enactments.

Finally, structural reform in user-fee schedules alone would not sufficiently improve highway service pricing. After that has been accomplished, there will still be need for continuing objective road tests to ascertain more precisely the effects of axle weight upon the highway and the separable costs of developing highways for heavy axle and gross loads. When those data become available and highway departments develop adequate cost accounting records, refinements can then be made in the absolute tax rates for the different classes of motor vehicles in accordance with cost evidence and a proper weighing of demand factors in pricing under actual market and utilization conditions.

Much confusion exists over economic methods of highway cost allocation. Notwithstanding, two generally tenable methods are available. The first is the incremental-cost method. That method has won the consensus of both engineers and economists who have studied highway cost allocation, but its application is delayed by lack of specific engineering and accounting data showing the separable construction and maintenance costs of heavy axle loads and vehicles. The second method, to which there has been much user opposition, is the gross ton-mile method. Professors Heller and Brownlee suggest that weight-function costs increase by the square of the axle load while the gross ton-mile method imputes only an arithmetical rate of increase. If the former assumption proves true, the special highway users should welcome rather than oppose the gross ton-mile results. In any event, there can be no

doubt, in view of accumulating toll-road experience and rising congestion on principal routes, that demand factors will justify higher user rates upon heavy vehicles as highways are improved. And since there is also evidence of weight-function costs not reflected in user fees, it would seem desirable, on both demand and cost-of-service grounds, to raise user rates on heavy vehicles and combinations. The gross ton-mile method affords a workable basis for approaching more closely than current schedules do to an ideal assignment of weight-function costs. Though inferior to adjustments on the basis of incremental costs that are not readily available, the gross ton-mile method has the additional merit of giving effective demand a better chance to limit highway use and to yield a more explicit indication of the economic desirability of investment in special features for special vehicles. An added nonmarket benefit would be the lessened social cost of congestion.

WILLIAM D. ROSS: The practical difficulties of solving the highway problem now confronting this nation are numerous. However, no phase of the problem is more important or more difficult than the problem of financing the highway needs of the nation. Engineers are capable of designing and constructing highways to meet modern traffic requirements. Materials and manpower are available. The obstacle to the provision of highways has been and still is financial.

It is my opinion that the principal paper presented in this session has oversimplified the nature and complexity of the highway finance problem. A part of this oversimplification is intentional, as stated by the authors of the paper, but some unintentional oversimplifications are also apparent. Confining the paper to what is referred to as the "trunk highway problem" does not eliminate for the authors the first fundamental difficulty encountered in any practical effort to develop an economically sound financial plan for the support of highway improvements. I refer to the problem of allocating total highway costs between highway users and the general public. This problem exists, to a degree, for major interstate highways just as for city streets and rural roads. Furthermore, the highway finance problem is indivisible. The problem cannot be solved for so-called "trunk" highways alone. Toll roads and a federally-supported interstate system could solve only a portion of the problem. A solution must be found for all road systems.

The highway users cannot theoretically or practically be assessed the full cost of providing low traffic volume connecting highways and access roads and streets. Some of the benefits of such roads are realized in forms other than the direct use of these roads, but the benefits are more than "illusions arising from failure to charge highway users appropriately for the services provided by the highway system." Some nonhighway-user revenues are necessary if adequate support for highway improvements is to be provided.

As a practical matter, utility of service or value of service cannot be used as a basis for pricing highway services to the highway user except in the very limited case of toll roads. The cost-of-service basis remains. The user share of the costs of providing highways can be allocated to the various highway users and user taxes imposed accordingly.

The most refined method of allocating highway-user tax responsibilities on

a cost-of-service basis is known as the incremental cost solution. This speaker has recently completed an incremental cost analysis of highway-user taxation for the state of Louisiana. (*Financing Highway Improvements in Louisiana*, Louisiana State University, 1955.) Many improvements can be made in the method, and better statistical data on which to base the analysis are needed, but the potentialities of this method of dealing with the highway-user tax problem are very promising. The Brownlee-Heller paper recommends the incremental cost approach without referring to it by name. However, the paper appears to minimize the importance of one factor in the solution: weight is as important to the process of allocating costs as distance traveled.

Failure to develop an optimal highway system in the United States is due to a much more complex set of circumstances than that suggested by the Brownlee-Heller paper. Failure to exact appropriate charges from highway users and to allocate wisely user funds for improvements is but a part of the problem. First, total revenues for highway purposes have been inadequate to provide an optimal total highway, road, and street system. State highway-user revenues have been collected from all users on all road systems but have been allocated to support improvements only on state highway systems and in some cases on rural local roads. Almost no highway-user revenues have been allocated to municipal streets despite the fact that a significant portion of highway-user revenues are generated from use of such streets. Because of the disproportionate political strength of the rural areas in most state legislatures of the nation, a disproportionate share of state collected highway-user revenues has been allocated to low-volume connecting highways in rural areas and to local roads. Service on the major arteries of state highway systems has been permitted to deteriorate, and the major traffic arteries within urban areas have frequently been neglected entirely.

Failure to allocate user revenues to road systems on a use basis as measured by traffic volume is one of the major factors which has prevented optimal development of the highway, road, and street system of the nation. Application of the incremental cost method in reverse would produce a more precise measure of road use for allocating revenues to the various road systems, but satisfactory approximation to the optimum could be realized if user revenues were allocated in relation to traffic volume alone. Supplementary nonuser funds necessary for support of a complete highway transportation system should be allocated in such a way as to bridge the gap between total requirements and user-revenue allocations to each system and each portion of each system. Construction and maintenance standards should be established by the engineers with proper regard for location, nature, and use of the various parts of the road system. Nonuse-related factors such as terrain, availability of indigenous materials, stability of subsoils, and weather influence the upper and lower engineering standards that are practical.

Where adequate financing of all reasonable road needs is possible, the problem of allocating expenditures in line with established guideposts for optimal service will be less difficult. The problem of priority in timing of improvements will be the major difficulty. Where total funds are inadequate, as has usually been the case in the past, or where jurisdictional barriers prohibit

the allocation of available funds to the system as a whole, the problem is more complicated. Political considerations are likely to be the dominating influence upon the allocation process.

Most of the limited revenues available for highway purposes in the past have been highway-user revenues. Although theory suggests separate bases for allocating user and nonuser revenues, it is impractical to attempt to separate such revenues for administrative purposes. Where total funds are adequate, the separation would be academic. Where total funds are inadequate, the marginal social benefit principle would seem to dictate the assignment of major weight to the traffic volume factor in allocating all available funds for improvements.

The problem of collecting highway-user taxes from each highway user in accordance with the amount of use made of the various highways, roads, and streets presents a complex administrative problem. The value of the use must be measured in terms of costs and related to travel by vehicle characteristics. However, the suggestion of the Brownlee-Heller paper that this problem be handled by having each user estimate the amount of anticipated travel for each year and later report the actual experience of the year in a fashion analogous to income tax reporting would hardly seem practical. A procedure of averaging travel conditions and service conditions by vehicle type would seem to be the only practical means of administering the problem.

The existence of separate governmental jurisdictions presents another difficult administrative problem. It is impossible for the administrative agencies of one jurisdiction to impose certain types of taxes upon highway users from other administrative jurisdictions. Where the traffic between jurisdictions is approximately equal, the problem cancels itself. There are numerous instances in which this is not the case. This problem alone, as the Brownlee-Heller paper suggests, would seem to indicate that federal administration would solve the problem. On the other hand, important differences in population, economic development, topography, climate, and many other factors between states dictate important differences in the cost and tax responsibilities assigned to motor vehicle users in the various states. Even within individual states, resort must be had to the procedure of averaging responsibilities on the basis of conditions existing throughout the state. Practical considerations necessitate such a procedure, but the same procedure applied to the nation could hardly be justified. Other means of dealing with the problem of unequal overlapping traffic between governmental jurisdictions exist. The incremental-cost solution to the problem of pricing highway services or allocating highway costs to highway users in the form of user taxes would seem to require state rather than federal administration of highway-user taxes. Existing federal and local highway-user taxes can be coordinated with state levies in assigning highway-user cost and tax responsibilities, but the imposition of selected additional levies can best be carried out at the state level.

ARNOLD M. SOLOWAY: I happily join this audience and my fellow panelists in appreciation of the clarity of exposition, and the constructive quality of

the paper we are called upon to discuss. I feel, however, the basic premise that "the highway problem should and can be resolved by government primarily in terms of the pricing process reflecting direct costs and direct benefits" needs some qualification. Indeed, many qualifications are suggested by the authors and I consider my own comment as largely an amplification on the issue.

I agree that "highways play no unique role in economic growth," but highways, like the railroads, waterways, and other important transport facilities, have a distinct influence on the distribution of economic growth within any given area. Because of this distributive influence, highway expenditure decisions, especially new investment decisions, must be concerned with some important aspects of social costs and social benefits which are not reflected in the pricing process of the market place if we are to have some useful concept of an "optimum."

As one illustration of this point, we may turn to the obvious influence of highway programs on the development of new industrial, marketing, and residential centers. In this part of the country, with which I am most familiar, we have had overwhelming evidence of the impact of new and/or expanded highways on the spatial distribution of both economic activity and population. The New York State Thruway, just recently completed, significantly enlarged the area of the New York metropolitan region. Sections which previously were not considered as likely locations for a variety of investments have now been added to the range of alternative choices for a New York location. Similarly, each major change in the highway network—the Wilbur Cross Parkway in Connecticut, Route 128 in Massachusetts, etc.—has wrought important changes in the distribution of residential population and economic activity. These changes, almost invariably, had important consequences, not only for the new development areas, but also for older, established centers. In brief, urban decentralization and more general dispersion of people and business would not have taken place in the way it did without the advent of the automobile and the highway built for its accommodation. I think it is clear that in this context social costs and social benefits are of rather large importance. The relative or absolute decline of urban centers involves a social cost which can be roughly measured in terms of the cost of duplicating existing fixed investments—in office, factory, and housing space, and in schools, utilities, police and fire protection and other local services—for which excess capacity remains in the older areas.

In addition to these measurable social costs, there are also many of the same "indirect, intangible, and third-party benefits" which we feel are important in the education program. Optimum investment in terms of economic growth for highways, too, must deal with social consequences—costs and benefits—which are not reflected in the market pricing system. The highway program we follow, like the educational program we follow, affects the public welfare in some degree which is not measurable in the direct costs-direct benefits equation. This broader welfare criterion is nonetheless significant.

Related to this first point, but somewhat more general and perhaps more elegant as a qualification, is the distinction we should draw between marginal decisions and total decisions. Briefly, we may accept the pricing system as our

guide for making relatively small changes in the highway pattern, but the same criteria are of much less use for making totally new decisions. What about an investment in a new highway to be built in anticipation of demand? The rule proposed to guide highway investment, as is true of Professor Lerner's similar rule, is really only useful for marginal decisions and does not satisfy the conditions involved in making major new investment decisions. A major new highway decision must be made in consideration of total circumstances and is not validly built on a small-change theory. Again, all the potential results of the altered highway pattern arising from the generation of new traffic and new investments must be taken into account.

With respect to the pricing system and highway investment, I have one more comment. Perhaps it is needless to recall that the whole market mechanism is only efficient as a resource-allocation device under conditions of full resource employment. The market test is not very helpful when we have a significant volume of unemployment. In such a situation we may well find that established investment criteria are in contradiction to the stimulative goals of over-all fiscal policy. This, I am certain, does not imply disagreement but only extends the consideration into a circumstance with which we are not presently faced.

The time limit does not allow me to elaborate, but I shall just mention the following notions which appear to me to merit further consideration:

1. The pattern of demand for highway use is irregular in time—the peak-load problem is of major importance and may involve some form of two-part tariff as suggested by the authors.

2. Can the trunk highway problem be abstracted logically from the over-all highway and road problem, including access roads?

3. If a highway investment proves to be a mistake, relevant marginal cost is the short-run marginal cost and the price should be zero rather than negative.

4. Highways, even aside from construction and capacity differences, are not all of the same nature. Some "excess supply" rural roads may provide access and opportunities for natural resource conservation, e.g., forest fire protection, and may vary over relatively short periods in their ability to meet direct costs depending on the changing demand for such resources as they make available. For example, a rural farm road may meet direct costs when farm prices are high, as during World War II, and lose that capacity in periods of lower farm product prices. Can or should highway planning be adapted to such variations?

HAROLD W. TORGERSON: The excellent paper by Professors Brownlee and Heller presented a number of ideas on which there probably will be fairly wide agreement. While there are differences of opinion on details, most people probably approve the generalizations that the cost of highways should in large part be paid by users, that charges to users should be equal to the costs they impose, that gasoline and other fuel taxes have weaknesses as a measure of use, and that buses and trucks should, in addition to fuel taxes, also pay appropriate license fees or weight-distance taxes. These are widely

accepted principles which state governments have adopted in varying degrees. The panel and the authors seem to be agreed that the special taxes imposed on buses and trucks need further study and refinement.

Another idea presented in the paper is that decisions with respect to allocation of monies for construction and maintenance of highways should be made largely on the basis of traffic counts measuring the service performed. Most economists probably would favor this idea, recognizing, however, that there may be grave political difficulties in putting it into effect. The proposal that the federal government should collect the basic motor-fuel and axle-mile taxes and apportion these funds to the states on the basis of traffic also has considerable merit. But if we want to make progress on solving our highway problems in the near future, we probably must recognize the political problems involved in making such drastic changes in our institutional arrangements and not plan on such changes soon.

Professors Brownlee and Heller mentioned the Clay Committee report and the 101 billion dollars needed for highway construction over the next ten years. They stated that current estimates are that under existing programs about 47 billion dollars will be available in this period, leaving a gap of 54 billions. For one-half of this gap, or 27 billions, the report advanced no plans other than to mention that the needs were local, and were a responsibility of state and local governments. The remaining sum of 27 billion dollars was reported as needed for the 40,000 mile interstate system, and it was suggested that major responsibility for the cost of this improvement should be assumed by the federal government because of the importance of these highways in interstate commerce, national defense, and civil defense. Following submission of this report, bills were introduced into the House and Senate to implement the program with respect to the 40,000 mile interstate system, and to continue federal aid for primary and secondary roads at the level of 622 million dollars, which is the highest in the postwar period. At the long hearings on these bills it was rather generally agreed that the most urgent need is for an improvement in the interstate system. This embraces only 1.2 per cent of the total road mileage but carries more than a seventh of all traffic.

It seems to me that several of the principles advocated in the main paper were applied, in part, in the Administration bills that were introduced into Congress. The paper suggested that money be allocated on the basis of traffic counts. The Clay Committee figures on the cost of the interstate system are estimates by the state highway departments of their "needs," and in the instructions to these departments, the federal Bureau of Public Roads defined needs on the interstate system on the basis of anticipated traffic in 1974. The Bureau also specified the cost-finding procedures and design specifications. Now if money were allocated to the states on the basis of the cost of building highways adequate to meet the traffic on a prescribed date, this would be a long step forward from allocating funds to the states on the basis of their area, population, and miles of rural free delivery and star routes, a pattern developed about thirty-five years ago. This provision, which applies only to the interstate system, seems to come fairly close to one of the suggestions made in the main paper.

The paper suggested also that the federal government collect the basic fuel and axle-mile taxes, and then apportion these to the states. There was no provision for axle-mile taxes in the bills before Congress, and I am not clear whether the "basic fuel tax" mentioned in the paper is the current level of federal fuel taxes or whether it includes part of the state fuel taxes. However, the revenues from the federal fuel taxes above 622 million dollars were to be allocated to the states somewhat along the line suggested. Of the 27 billion dollars to be spent on the interstate system, it was planned that the federal government would provide approximately 92 per cent or 25 billions, and the states would provide the remaining 8 per cent or 2 billions. Of the 25 billions it was estimated that available funds from federal fuel taxes would provide 4 billions, and the bills provided for issuance of 21 billions of revenue bonds which were to be retired out of future receipts from fuel taxes over a period of twenty years beginning in 1967.

In the main paper the authors discussed the issues involved in the decision as to how to finance this or a similar deficit incurred for highway construction. They gave no categorical answer, stating that this was a problem which should be resolved at a particular time taking into account the nation's goals as to capital formation and existing fiscal and monetary conditions.

The provisions in the Congressional bills for issuance of revenue bonds aroused considerable opposition, the major objections being that over the thirty-year period the aggregate interest cost would be about 11 billion dollars and that the device was a subterfuge to avoid the public debt limit. Opponents suggested that taxes on highway users be increased and that expenditures be geared to receipts from these taxes.

In speaking for the Administration, the Secretary of the Treasury took the position that the proposed revenue bonds were a feasible method of financing, but offered no objection if Congress desired to increase taxes and cover the cost either in full or in greater part than proposed. He thought it was very urgent that legislation be enacted to authorize construction of the interstate program as proposed and doubted whether it was feasible to finance this program on a current basis from taxes on highway users. The Secretary favored the revenue bond plan over the issuance of regular Treasury bonds because the former made provision for retirement of the debt over a thirty-year period. It was clear that the Administration placed primary emphasis upon the urgency of getting started on a long-range program of improving the interstate highway system and regarded any particular method of financing as secondary, provided the legislation made provision for retirement of any bonds issued. This point of view seems reasonable, but it seems that it would be quite appropriate for the present group of highway users to pay somewhat larger federal taxes for highway purposes than at present. Time limitations do not permit me to develop this point. Incidentally, the morning newspaper states that the Administration now has abandoned the bond financing plan and will go along with proposals for higher taxes on gasoline, diesel fuel, and tires.

Although there seems to be difference of opinion among members of the panel on this point, I would like to introduce a note of urgency into this discussion of our highway problem. Our provision for major highways has lagged

far behind the increase in the number of vehicles using these roads. It is vital that we make progress toward the goal of reducing traffic congestion at the points where it is the greatest. With the automobile industry producing just under 8,000,000 cars this year and with the Christmas week just concluded establishing a new high in traffic fatalities, it seems essential to put into effect bigger plans for highways than we have enacted to date. In 1954, two committees were appointed to study the highway problem, one by the organization of state governors and the other appointed by the President. These committees agreed that the urgent problem is the 40,000 mile interstate system over which such a large volume of traffic flows. They agreed also that plans should be formulated on a ten-year basis, with the idea of making steady progress toward the goal over the period. People with long experience in the problems of administering road programs emphasized strongly during the hearings that the start-stop approach common under year-by-year planning would not be appropriate on this project for several reasons. First, the project is so large that it should be approached on an over-all rather than a piecemeal basis. A second reason relates to the resources of manpower and materials that will be needed for this task. Engineers are going to have to be attracted and perhaps trained for this work. Also, if construction firms are going to feel justified in investing in the most modern and economical types of earth-moving and surfacing equipment, a long-range plan to accomplish the task should be formulated. A third reason is that acquisition of the necessary sites for the entire project should be made as soon as possible, as delay will increase the difficulty and expense.

It is regrettable that Congress could not agree on a bill in 1955. The disagreement on financing has been mentioned. There was difference of opinion on the question as to whether the states should be reimbursed for the depreciated value of highways which conform to the desired standards and would become part of the interstate system. Other points of difference included the ratio of matching federal and state funds and the basis of apportioning funds between the states. There seemed to be agreement in Congress, however, on the urgency of improving the interstate system.

It is believed that the differences are not so important that they should be permitted to delay further the start on this important program. Let us hope that 1956 will see enactment of legislation to start work leading to construction of this interstate system.

ECONOMIC GROWTH IX. UNEMPLOYMENT AS A PHASE OF ECONOMIC GROWTH

MEASURES TO BE TAKEN AT DIFFERENT LEVELS AND DISTRIBUTIONS OF UNEMPLOYMENT

By ALBERT GAILORD HART
Columbia University

Unemployment, Investment, and Growth

From the standpoint of growth, policy toward unemployment has to be judged by two sets of consequences. Whatever unemployment we experience will represent a wastage of resources, in part at the expense of growth. On the other hand, measures to combat unemployment—both standing arrangements and *ad hoc* remedies—will have their own effects, which may be growth inhibiting.

The notion that a society concerned to keep up a rapid tempo of growth may do well not to be too squeamish about unemployment has been made familiar by Schumpeter and others. The idea that unemployment itself makes a contribution to growth by providing individuals with a vivid danger they can escape by hard work, it seems to me, is hard to accept in our generation. But it is plausible that the way we go about combating unemployment may hamper growth. The swimmer who is so afraid of getting his face splashed that he strives to keep his whole head out of water will not get anywhere very fast—and may not even stay afloat as long as if he really dug in and swam!

Particularly likely to inhibit growth, it seems to me, are policies which try to cope with threats that workers may be displaced by "spot" measures that hold the workers where they are and pretend they are not unemployed. Disguised unemployment is just as real a wastage of resources as overt unemployment—with the added drawback that it is often harder to diagnose. Much as an economist must sympathize with some of the objectives of the drive for annual-wage contracts, he must recognize that too specific a linkage of individual workers with particular employers may simply convert unemployment into underemployment, as seems to happen in slack times in France. Workspreading devices in declining industries like coal (particularly if they enjoy good hourly wage rates) may hold underemployed workers there instead of making the released labor available for growth elsewhere. Heavy public works programs in declining areas may be simultaneously reducing labor mobility out of these areas and diverting capital resources from lines of higher productivity.

A period of recession in employment, of course, is also one of recession in investment—on this side, a period of arrested growth. Of the potential labor services that run to waste in such periods as much as half may represent foregone output of producers' equipment, buildings, and other goods of long usefulness. On the record, it is true, the continuity of peak-to-peak trends applied to output curves suggests that even the major depressions of the seventies, eighties, and the thirties did not prevent output from reaching soon afterward as high levels of output as could reasonably have been extrapolated from pre-depression trends. (See the conspectus of long-term production curves in my *Money Debt and Economic Activity*, 2nd edition, 1953, page 270. Several curves do suggest, however, that the apparent full employment peak of 1923 was lowered by the interruption of World War I and its ensuing depression.) But at the very least, if we had been able to operate the investment industries continuously, we could have had the same growth while releasing perhaps 5 per cent of the nonfarm labor force to add to other output. Perhaps we could have had appreciably more rapid growth. If the marginal productivity of investment was of the order of 5 per cent and the average unemployment wastage of potential investment resources of the order of 5 per cent of nonfarm output, holding investment at the level of the best years should have added something of the order of $\frac{1}{4}$ per cent per annum to our growth rate.

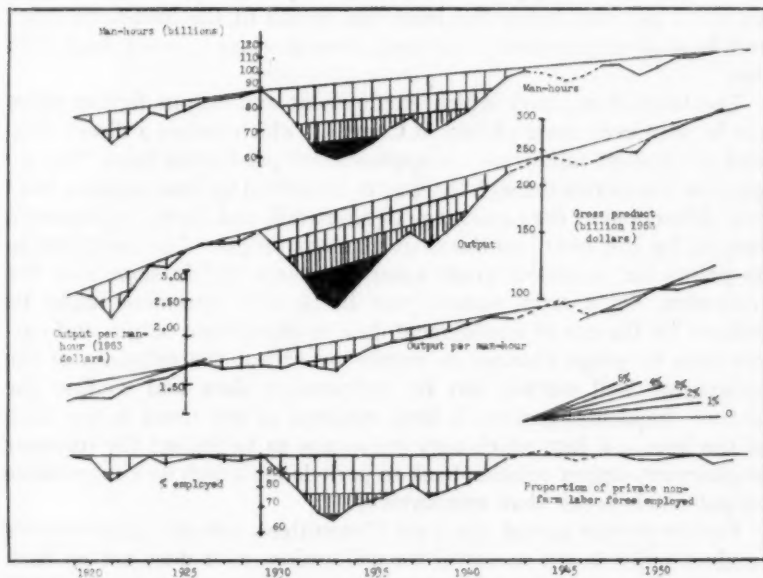
Aside from losses in the quantity of investment, it seems likely that unemployment may interfere with growth by blurring the guidelines for development offered by demand. It is when activity is full that we can best judge which are the bottlenecks we should next work on. Particularly when we have gone several years without enjoying any stretches of full activity, we are dependent on extrapolated guidelines of uncertain meaning. An example of this is the contrast between the problems of selecting fruitful public works now and in the thirties: today's issue is to select among projects that all look attractive, whereas in the thirties many projects looked in advance (and some turned out in the end) to be "roads to nowhere." This principle applies not only to investment, public and private, but to all long-run decisions—notably career commitments by young people, vocational adaptations in education, design of industrial research projects, and discernment of key planning problems by management.

Diagnosis of Unemployment

To size up unemployment for policy purposes is notoriously a ticklish job. But we are somewhat better off than a few years ago—partly because of postwar experience, partly because of retrospective light on earlier experience.

On the side of retrospective research, our great benefactor has been Stanley Lebergott, who has blessed us with a reworked series of unemployment estimates back as far as 1900. Building on these estimates and on the work of John W. Kendrick, the staff of the Joint Committee on the Economic Report has related output and man-hours employed since 1910.¹ The resulting picture for the private nonfarm sector is shown in Chart I.²

CHART I. OUTPUT AND EMPLOYMENT, PRIVATE NONFARM SECTOR, 1919-53



As would probably be expected, output (the next-to-top curve of the chart) shows a considerably greater amplitude than employment (at the bottom). Man-hours (at the top) show an intermediate amplitude. The third curve, showing output per man-hour, fluctuates with minor exceptions parallel to employment. (One to-be-expected exception fails to appear: there is no clear-cut tendency for output per man-hour to gain more than would be expected from the cyclical position after

¹ Stanley Lebergott, "Estimates of Unemployment in the United States, 1900-1952" (in press at the National Bureau of Economic Research); John W. Kendrick, "National Productivity and its Long Term Projection"; Joint Committee on the Economic Report, *Potential Economic Growth of the United States during the Next Decade* (1954).

² The top three curves are graphed directly from *Potential Economic Growth*, p. 34; the fourth puts Mr. Lebergott's unemployment figures as per cents of the private nonfarm labor force (civilian labor force less agricultural and civilian government employment). On each curve, "apparent full production" is traced through the peaks (using 1953 at the right), and the area under the curve ruled off in zones of zero-10 per cent, 10-20 per cent, 20-30 per cent, and over-30 per cent short-fall.

standard working hours were reduced in 1933. Perhaps one should introduce a break at 1933 in the apparent-full-production-level lines for man-hours and output, making these lines steeper in 1929-32 and also in 1934-53.) Presumably this fluctuation reflects largely the greater cycle-sensitivity of high-output man-hours used to produce durables as against lower output man-hours in other industries, plus perhaps a slower flow of work to workers on piece rates and some under-employment of key men when work is slack. In addition, it appears that after both wars private nonfarm output per man-hour started about 10 per cent below the level that would fit the long-term trend and level of employment,³ and took several years to work back into line.

The faithfulness with which employment and output figures agree can be seen even more plainly in Chart II, which makes a direct comparison of short-falls from the apparent-full-production lines. The regression line drawn through the scatter is derived by least squares from first differences of the percentage of short-fall, and shows employment varying by just over two-thirds as much as output.⁴ The lines linking up points for successive years agree extremely well in slope with the regression. On a strict year-to-year basis, this agreement might be induced by the use of employment data to interpolate output and output data to gauge changes in employment; but the extremes of the swings are well marked out by independent data and confirm the picture. Incidentally, there is little evidence of any trend in the slope of the lines⁵—a fact which may encourage us to project the interwar employment-output relation back to periods for which we can measure output much better than employment.

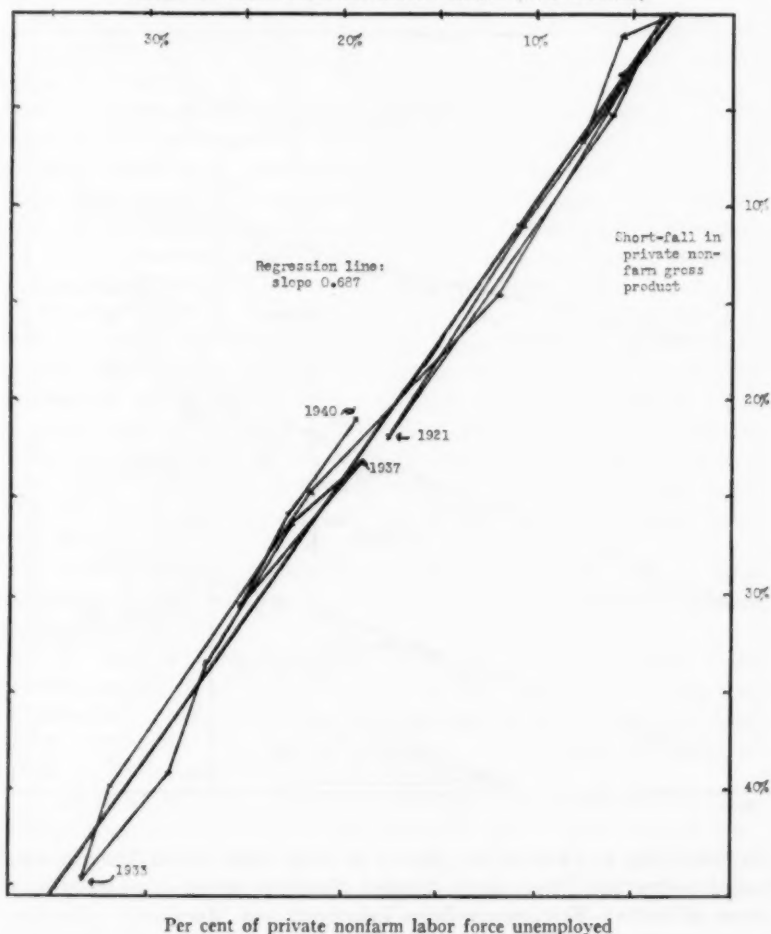
For the prewar period, the Joint Committee's private nonfarm gross product series is not so useful for calibration, as it does not go back far enough to give us anchor points. But as may be seen from Chart III, there is a reassuring resemblance in time-shape between the Lebergott unemployment series and other series we can calibrate; e.g., series for

³ The growth line above the output-per-man-hour curve for 1919-26 is drawn to hit the prewar peak at 1913. Both 1919 and 1947 were years of full employment and inflation. It is interesting to speculate whether the inflation may have had substantial effects on efficiency (if so, why the good showing of 1950?), or whether it may have warped the measurements in a way that produces serious understatement of productivity.

⁴ For man-hours, the corresponding regression on output is about 0.83. Strictly, of course, least squares fittings yield two regressions. But the correlation of year-to-year changes is so high that the regression coefficient of 0.672 for the change in employment short-fall on change in output-short-fall is barely distinguishable from the reciprocal (0.703) of the inverse regression coefficient. On the chart, I have split the difference and made the regression slope 0.687.

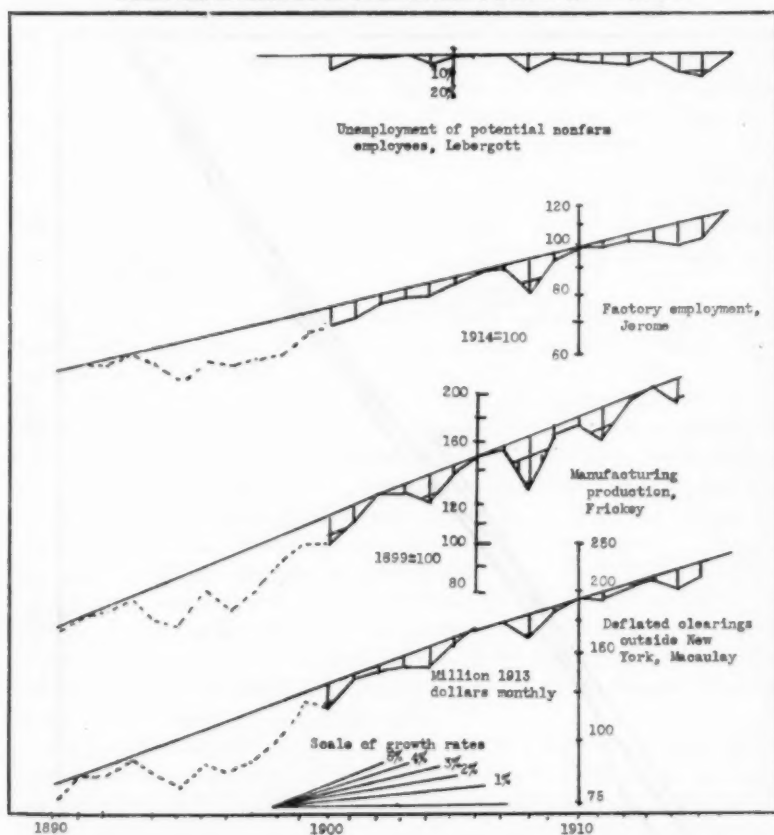
⁵ For the three pre-1929 contractions (1919-21, 1923-24, 1926-27), the total increase in the employment-short-fall is 0.67 of the total increase in the output-short-fall. The corresponding ratio for the post-1929 contractions (1929-33, 1937-38) is 0.69. For the pre-1929 expansions the corresponding ratio is 0.70; for the post-1929 expansions (stopping at 1940), 0.66.

CHART II. RELATION OF UNEMPLOYMENT AND SHORT-FALL FROM FULL-PRODUCTION LEVEL IN PRIVATE NONFARM GROSS PRODUCT (1953 DOLLARS)



unemployment as percentage of nonfarm employees—rectifying the figures, however, to make the percentages (like those for unemployment in relation to civilian labor force) show unemployment as a proportion of the total employed and unemployed. The Jerome factory employment index (particularly interesting since it is one of our few long monthly series) shows only fair conformity to the Lebergott figures: it lacks a 1913 peak and shows the 1903 position as a submerged rather than a full peak. While disappointing, this result is not

CHART III. INDICATIONS OF UNEMPLOYMENT BEFORE WORLD WAR I



too surprising in view of the paucity of data with which Jerome was forced to operate. Macaulay's deflated clearings series (also monthly) comes off better. Frickey confirms Lebergott and Macaulay (allowing for the higher amplitude normal to manufacturing output), with the disquieting exception of a strong 1911 trough in Frickey's index. (Frickey's image of a sharp 1911 trough is supported to some degree by such indicators as freight ton-miles and pig-iron production.) On the whole, however, the upshot seems to be that the employment situation is reasonably well mirrored by physical output series.⁶ This is a

⁶ While Mr. Lebergott has used production series as interpolators, he has anchor points for 1900 and 1910 in bona fide unemployment statistics. It is true, however, that both his series and the production indexes (though not such indicators as freight ton-miles and deflated clearings) depend on bench marks from censuses taken in slack times. One

considerable help in trying to interpret the experience of nineteenth-century depressions.

For the postwar, the Joint Committee on the Economic Report has just elicited from the Census Bureau a most illuminating set of comments and tabulations.⁷ The relation of part-time work to unemployment is examined from several angles; and the composition of the unemployed is presented in very rich cross-tabulations. There is also a memorandum from the Budget Bureau, pouring cold water on the proposal to adopt as a standard measurement an index of "full-time equivalent unemployment." On this matter, I am inclined to side with the Joint Committee staff. It seems to me that the Budget Bureau's view undervalues the evidence on underemployment contained in data on working hours by industry, which would make it unnecessary to load the Census field survey with details on desired hours except for the unemployed.⁸ It seems to me, also, that we need a corrective for the habit of counting as full members of the labor force the two million or so who are enrolled in school, and the two million women with children under six—most of whom must be available less than half time. The best single index of unemployment would probably be the short-fall from full prosperity levels of a physical volume index of man-hours with base period wage rates as weights.

It may be helpful to close this section of the paper with a brief summary of my reading of the lessons of postwar employment experience:

1. The curious changes in the level and movement of key items in the Census monthly labor force sample, when the Census in 1953 changed its sampling, offer a salutary reminder that most of our statistical "facts" are somewhat shaky constructs, not guaranteed to mirror reality in all desired respects.

2. Despite ambiguities, it seems meaningful to place the point of "full employment"—below which unemployment cannot be pulled by general economic stimulation except temporarily and at the cost of inflation—in the neighborhood of 2.5 per cent of the civilian labor force.

of the great nuisances of historical statistics is that between 1889 and 1923 there were no censuses of manufactures for years that were clearly high prosperities. The height of such peaks as that of 1906 is therefore somewhat debatable.

⁷ Joint Committee on the Economic Report, *Employment and Unemployment Statistics: Hearings before the Subcommittee on Economic Statistics . . . November 7 and 8, 1955* (1955).

⁸ Perhaps I should report, however, that a regression like Chart II for private nonfarm man-hours in relation to output fails to improve in conformity on Chart II. The only difference that catches the eye is the steeper regression. Man-hours seem to have changed by about 5/6 as much as output (as compared with 2/3 for employment). In view of the fact that the square of the correlation coefficient for first differences in the short-fall of output and employment is already 0.91, there is of course next to no room for finding a relation with a better "fit."

This was about the average level of 1953. Lebergott shows 1.9 per cent for 1926, the best year of the twenties.

3. Our two postwar recessions bear out the impression that virtually all money wage rates are "on a ratchet"—with recessions failing to erase preceding increases.

4. In the 1948-50 recession, however, unemployment amounting to 5.4 per cent of the civilian labor force in 1949 sufficed to bring wage rises to a halt, permitting productivity to pull ahead of money wages. (Here I am summarizing work I did in 1952 for the American Assembly. My conclusion was that the increases which raised the wage averages during 1949 could almost without exception be identified as results of slow-acting negotiation machinery, which delivered in 1949 a number of increases deferred from 1948. The industries whose increases had set off the postwar wage "rounds" in 1946, 1947, and 1948—notably coal—had no 1949 raises.) My grasp of the figures for the 1953-55 recession is less firm, but my impression is that somewhat milder unemployment left room for wage increases about as fast as the growth of productivity.

5. Taking upswings and downswings together, I am inclined to support Professor Hansen's contention that the economy shows a good deal of inherent resistance to inflation. Since the end of 1950, the industrial part of the wholesale index shows a rise averaging 0.9 per cent per year, which in view of the highly satisfactory profit situation must mean a very modest inflation of costs. Considering that part of the wage increases since 1951 have served to buy the economy out from escalator clauses and taking account of the way the rapid inflation broke off in 1951, I think we can write off the fear that our institutions make inflation automatic.

The Unemployment Criterion in Stabilization and Development Policy

One of the favorite problems of stabilization policy a few years ago was the dilemma which would arise if (as Everett Hagen put it at an Association meeting) "all hell broke loose" in the control room of policy, with the gong of excess unemployment demanding an expansive policy while simultaneously the whistle of excess inflation demanded a restrictive policy. How real is this dilemma for the future?

If we look back on policy since the war (waiving the special case of the period in 1950-52 overshadowed by the Korean war and acceleration of armament), those in the control room have never had either alarm signal really dinning in their ears. The indicators seem to have been wired up so that a moderate degree of unemployment or inflation would turn on a yellow light, and only if the situation became acute

would the light turn red and the gong or whistle go off. Unemployment in both recessions reached the yellow-light stage, about half a year into the downswing. Although by hindsight we can see the 1948 downturn in the October figures, there was nothing available by the end of the year to show that the decline was more than a wobble. The signal visible to those in the control room was actually a yellow light on the inflation board! The January, 1949, *Economic Report* gave pride of place to anti-inflation measures, and called for 4 billion dollars of taxes to make good the revenue loss from the income-splitting provision of the 1948 income tax legislation. About half a year after the downturn, the Federal Reserve noticed that the inflation-yellow had winked out. In September, 1949, a year into the recession, the economists whose statement appeared in the December, 1949, *American Economic Review* felt that the unemployment-yellow was clearly showing, and produced a contingent recommendation for fiscal countermeasures if employment deteriorated further or failed presently to show gains. Such gains were in fact visible by early 1950; but the unemployment-yellow was visible to almost everybody till the Korean outbreak in June, 1950.

Despite the dramatic check to inflation in early 1951, most officials and economists considered that the inflation-yellow was on through 1952 and much of 1953. What proved to be a very timely easing of monetary policy looks to the outsider like a reaction to a technical monetary situation rather than foresight about employment. Since the turn came about midyear in 1953, the downswing was unmistakable by the winter policy-making season. (There was a lively discussion of recession policies at the Association meetings that Christmas.) Anti-recession tax cuts had strong support inside and outside Congress. I am myself on record (in a letter to the *New York Times*, jointly with my colleague W. S. Vickrey, in March, 1954) in favor of putting any feasible permanent cuts into excise, but relying for temporary support of the economy on a temporary abatement of personal income tax. In the end, the only important tax concession was to let the excess-profits tax expire. While the record suggests that the expiry helped appreciably in sustaining disposable income, the move seems to be best interpreted as part of the Administration's policy of dispensing with pseudo-war controls adopted in 1950-51, sanctioned in conventional budget terms by the cresting over of defense outgo. Thus the unemployment criterion probably had little effect on tax policy. The most important substantive recovery measure it may have guided was the easing of credit for construction.

While the acute form of the stabilization dilemma may never arise, we have had some experiences with a milder conflict of unemployment and price objectives. Some critics take the line that undue concern with

inflation dangers led the Administration to take excessive risks with unemployment in the latest recession. In the event, we got a reasonably full and quick recovery. My main criticism of policy would be that we accepted the wrong kind of upswing, relying on a probably nonsustainable rise of autos and housing. Both to reduce the risk of a serious setback in 1956 or 1957 and to help set up guidelines for growth by mapping out future needs, it seems to me that we would have done better to check rather than encourage the growth of mortgages and consumer credit and to supply equivalent motive power by a temporary tax abatement.

Failure to visualize this line of policy, it seems to me, shows not so much a conflict of employment and price considerations as an undue shortening of the policy horizon. A better integration of policy for development and stabilization is the natural corrective. The question whether a given line of investment is going beyond a sustainable rate hinges largely on the place of that line of development in general economic development. Naturally we must have some lines that outpace the average, to offset the tapering off of established lines. But we are probably endangering future stability rather than encouraging sound growth if we let investment in long-established lines, at a pace out of line with general growth, be a main reliance in several successive upswings. The great policy error of the twenties, it seems to me, was to march up to the breaking point of investment in these very lines of investment (housing and autos) without having mapped out the alternatives on which we must rely when they let us down. If we take seriously the idea of a policy toward growth, it becomes a central responsibility of stabilization policy to feel out the investment alternatives rather than let established lines of investment that may be nearing saturation displace those alternatives.

DISCUSSION

ALBERT S. EPSTEIN: As a teacher, Dr. Hart should set an example in fitting the subject matter of his paper to its title. I am sorry to say that the bulk of his talk does not deal with "Measures to Be Taken at Different Levels and Distributions of Unemployment."

A glance at records available from 1929 to the present shows that unemployment has varied all the way from 1.3 to 24.8 per cent of the civilian labor force. As shown below, four distinct levels of unemployment can be easily distinguished. But Dr. Hart manages to deal with only one level (and casually, at that) and does not concern himself at all with the "distributions."

I believe that a brief review of the unemployment record for the past twenty-five years is a necessary preliminary for a discussion of the measures to be taken. The peak of unemployment was reached in 1933, during the Great Depression. In terms of unemployment, the crises lasted twelve years from 1930, when unemployment was figured at 8.7 per cent, through 1941, when it stood at 9.9 per cent. During the intervening ten years, unemployment did not fall below 14.3 per cent.

At the other end, we have the experience during the war years of 1943, 1944, and 1945, when unemployment was below 2 per cent of the civilian labor force. To these war years we should add the extremely low figures for the postwar years: 1951, 3 per cent; 1952, 2.7 per cent; 1953, 2.5 per cent. It is in regard to this level that Hart states that postwar employment experience would "place the point of 'full employment'—below which unemployment cannot be pulled by general economic stimulation except temporarily and at the cost of inflation—in the neighborhood of 2.5 per cent of the civilian labor force. This was about the average level of 1953."

If we raise Dr. Hart's percentage to 3 per cent in order to encompass 1951 and 1952 in our full employment group, we have the interval from 3.1 to 8 per cent to deal with. We could then consider the unemployment rate from 3.1 to 4.9 per cent as being moderate and unemployment of 5 to 8 per cent as serious. I have chosen the intervals for illustrative convenience rather than precision. A review of the incidence of unemployment over the past quarter of a century gives us at least four meaningful levels of unemployment. As suggested above, they might be grouped as follows: (1) full employment—unemployment rate of less than 3 per cent; (2) moderate unemployment—above 3 but less than 5 per cent; (3) serious unemployment—above 5 but less than 8 per cent; and (4) severe unemployment—over 8 per cent.

Now, the sole purpose of setting up four different classes of unemployment is to show that there have been at least four meaningful levels of unemployment which Dr. Hart should have discussed. But I have been able to discover only one direct statement on this matter. It deals with one level of

unemployment, that of 1953-54. There, he criticizes the Administration for relying too much on their "nonsustainable rise of autos and housing." He suggests instead that "it seems to me that we would have done better to check rather than encourage the growth of mortgages and consumer credit and to supply equivalent motive power by a temporary tax abatement."

I suppose that there is an implied negative proposal in Dr. Hart's definition of full employment, quoted earlier. At this level, I suppose, his advice would be "to leave well enough alone."

There is also the warning against "undue shortening of the policy horizon" and the need for integration of policy to avoid allowing "investment in long-established lines, at a pace out of line with general growth, be a main reliance in several successive upswings."

Finally, he relates this warning to be the "great policy error of the twenties" when "overinvestment in housing and autos" led to the Great Depression.

Dr. Hart's over-all reaction toward government unemployment policy is ambivalent. While he recognizes that "unemployment represents a wastage of resources," he is afraid that the "way we go about combating unemployment may hamper growth." In other words, Dr. Hart concedes that unemployment is a disease; but he is afraid that the proposed cures are even worse than the disease itself. I agree with this statement fully.

Dr. Hart finds it hard to make his mind up regarding the consequences of unemployment policy. He is afraid that "measures to combat unemployment" may be "growth inhibiting." He feels that if we accept a rapid tempo of growth, "we may do well not to be squeamish about unemployment."

The result is that Dr. Hart has very little to say about the measures to be taken at various levels of unemployment and nothing to say about the various distributions of unemployment.

To repeat, we have had experience with at least four types of unemployment in the past twenty-five years. It seems to me that the measures actually taken by the federal government at each level should have been scrutinized by Dr. Hart. Furthermore, he should have indicated how successful they were and what steps he would propose in retrospect.

Along with each level of unemployment we must also consider the distribution or composition of unemployment. It is quite obvious that two different periods may have the same level of unemployment but different distributions.

In planning the sessions on economic growth, Dr. Black, as President of the American Economic Association, took the trouble to detail suggestions to each participant in the program. In regard to Dr. Hart's topic, the statement had the following to say:

Part of this problem is keeping up the purchasing power by evening out its growth. Relation to this of social security and inflation and deflation. The pattern of national economic growth, geographic and otherwise, agriculture vs. industry and urban and interindustry, as an aspect of this. Also the impacts of changing technology and resulting need for readjustment. Importance of the timing of the measures. The measures to be taken will of course have major fiscal policy involvements, but should by no means be limited to fiscal action.

The pattern of national economic growth has been such as to create

"structural" or "spot" unemployment in certain industries and regions. It is regrettable that Dr. Hart had nothing to say on this subject, although it has aroused the attention of government, labor, and industry.

I think there is a danger in accepting any mechanical approach to full employment and designating any specific percentage as being its measure. I would prefer to give it a less rigid and more meaningful definition. Let me put it in a negative form: We do not have full employment so long as we have any amount of avoidable unemployment. I maintain that we have had and have today avoidable unemployment in many localities.

Aggregate unemployment figures tend to hide local unemployment. It is important to bear in mind that in July, 1955, when national production was breaking all-time records, thirty-one of the 1949 major labor-market areas had "substantial" unemployment—unemployment of 6 per cent or more of the civilian labor force. In twelve areas the jobless rate exceeded 9 per cent; in seven, it was over 12 per cent.

Dr. Arthur Burns and the President have called for a domestic Point Four Program. Senator Paul Douglas had anticipated the Administration by his Depressed Areas Bill—S. 2663. Whatever attitude we may have toward the specific proposals made by the President or Senator Douglas, I believe that they deserved discussion in Dr. Hart's paper.

We could be cynically indifferent to the plight of the New England cities and say that New England's loss is the South's gain. But I believe we ought to distinguish between the economic and political factors which have been responsible for the location of plants in the South. The trade-unions welcome the industrialization of the South. But they object to the various types of financial subsidies and tax exemptions offered with the aim of prying firms loose from their existing plant locations to settle in new communities. When one section of the country uses tax-exempt municipal bonds to attract industries from other parts of the country, then it does become the concern of the federal government and does concern us in this discussion.

Moreover, I believe that there is a moral issue involved. I think that where there is a choice involved between creating employment in a new area and creating unemployment in an old community, the protection of the older community should take precedence. Disorder and disruption of life should be avoided wherever possible.

What is encouraging in this connection is that there are instances where citizens have succeeded in preventing the migration of a strategic plant. I have in mind the steel mill in Follansbee, West Virginia, which remained there as a result of the action of a united community through nation-wide publicity.

There is general agreement in this country about the need for an expanding economy. But there is also the firm belief that the costs of industrial progress should be equitably distributed through the whole of the population. This, of course, is the thinking behind unemployment compensation. It applies equally to the problems raised in the distressed areas. As already indicated, the Douglas Depressed Area Bill is an effort to cope with this situation.

I have dealt at length with this type of unemployment because it is a most

pressing problem at this time. Labor's concern with distressed areas is perhaps illustrative of the role that a union plays in such a situation. It sounds the alarm because it is sensitive to the wishes of its members. It is aware of facts long before they become recorded as statistics. To effect a cure, the doctor must have the co-operation of the patient. The patient must describe his symptoms and pains before he can expect help. The economic theorist often lags far behind the unions because he must wait for facts to become recorded as statistics.

Closely related to unemployment is the problem of underemployment. Dr. Louis J. Ducoff has defined this phenomenon in a paper delivered at the Conference on Measurement and Behavior of Unemployment as follows:

Underemployment, partial unemployment, and disguised unemployment are various terms used to connote the several manifestations of inadequate employment opportunity or the under-utilization of the actual or potential manpower resources.

I agree with Dr. Hart that disguised unemployment "is just as real a wastage of resources as overt unemployment." Where is this to be found? Ducoff finds that from "the standpoint of the agricultural sector of the United States economy, the problem of underemployment is mainly one of redundant or surplus manpower on the less productive farms." The underutilization of skills in the distressed coal, railroad, and textile regions is another example of underemployment.

But Dr. Hart sees the whole question in a different light. He is worried that "annual wage contracts may simply convert unemployment into underemployment." He finds that high wages for coal mines have made for underemployment. He also feels that proposals for heavy public works programs would reduce labor mobility and would divert capital resources from lines of higher productivity.

Although there may be some merit to the observation regarding a heavy public works program, I believe that Dr. Hart is straining at a gnat while swallowing a camel. As already indicated, he has no proposal whatever to make regarding the distressed areas except to criticize possible assistance in the form of public works. Why not offer some measure that will stimulate mobility by offering grants to families that may wish to move from the distressed areas? What is wrong with attracting appropriate industries for these localities? As to the miners, I do not get the point at all. High wages in coal mining has meant the introduction of the most modern machinery and the migration of the displaced miners into industries hungry for manpower. If there is a problem in the coal regions, it is the kind that Dr. Hart has failed to mention and which I have discussed in relation to the distressed areas.

But most incomprehensible to me is Dr. Hart's charges that annual wage contracts "may simply convert unemployment into underemployment." If this is true, then the same charge must be made against unemployment compensation, since the plans referred to are directly linked to state unemployment systems as indicated by the name Supplemental Unemployment Benefit plans. Does Professor Hart think that SUB will have no effect upon the employer's conduct of his business? Is it not likely that these plans will help even out employment and thus assure a steadier flow of income and expenditures and thus aid in the growth of the economy?

This is one of several examples where Dr. Hart sees the ill but not the good that flows from certain social benefits. He seems to be unduly concerned with the production side and not enough with the income side of our economy. This is illustrated by his reference to overinvestment in housing and autos as being the "great policy error of the twenties," but not a word about the lopsided income distribution. No one will quarrel with the contention that the seeds of the Great Depression were to be found in the economic development of the twenties. But let us have a balanced picture.

One student of that period has pointed out:

The fundamental weakness of the expansion in the 1920's was in the plight of the farmers and in the steadily widening gap between the current output of goods and services and the purchasing power currently generated by production and distribution. Despite the policy of high wages, the share of wages in the value of industrial products declined steadily as a result of progressive displacement of human labor by mechanical devices.

Characteristic of our current booming and vigorous economy is not the absence of danger spots but the presence of dynamic, recuperative forces able to overcome them. One of the strong features of our present economy is precisely the fact that we have built-in stabilizers including the mechanism for raising but not lowering wages. As a result, labor's share of the national income has risen from 58 per cent in 1929 to 69 per cent in 1955. Dr. Hart fails to note this aspect, although he does cite as one of the lessons of the postwar employment experience that "money wage rates cannot be cut."

In his reference to the twenties, Professor Hart has omitted another important factor: stock speculation. It has been estimated that "during the 12 months before the collapse, the stock exchange yielded \$32 billion in profits. Measured in net profits, security speculations not only became the biggest single business in the United States but overshadowed all other businesses combined."

It is rather surprising that Dr. Hart, who was so careful to balance unemployment as a "wastage of resources" against the "growth inhibiting" consequences of certain "measures to combat unemployment," should become so careless and superficial in his comparison between the present and the twenties. The differences between the two eras are wide and fundamental, as I have tried to show earlier. The wrong diagnosis might easily lead to a cure which is worse than the disease itself.

In this connection, I recall with trembling that just about two years ago the world renowned economist Colin Clark, University of Oxford, England, had the following to say in a debate with W. S. Woytinsky: "... the unpleasant medicine which I recommend as feasible is a budget deficit. . . ." What a mighty dose he prescribed: "During the worst months . . . the deficit will have to be running at an annual rate of over \$20 billion per annum."

Rejecting this drastic remedy, Woytinsky said:

The growth of our economy may be interrupted by setbacks of varying severity, and some of them may require a resolute intervention of the government. The methods of intervention, however, must be adjusted to the specific character of the emergency and cannot be reduced to the prescription of horse-size doses of bleeding or blood transfusion—the only two medicines in the books of builders of mathematical models.

An economy described by half a dozen equations has no recuperative force and appears extremely brittle, ready to collapse as a result of any disequilibrium. This is the cause of an occupational disease observed among the builders of economic models. Surrounded by these strange contraptions, they become victims of hypochondria.

In the hope of halting the spread of this economic hypochondria, I have quoted the two sobering paragraphs from Woytinsky's prophetic answer to Clark's gloomy and false predictions.

EWAN CLAGUE: There can be no substantial disagreement with the data for the nation and for New York State which Commissioner Lubin¹ has presented. I am in agreement with his general conclusions. However, I think there are some points worth emphasizing—points which may be implied in Lubin's paper but which need some sharpening.

In the first place, we must get away from the idea that there is a single definitive figure measuring the number of unemployed. A figure which is useful for one purpose may be misleading for another. For example, there are the workers who are classified as having a job, although they are not at work. Some of these have recently been laid off but have been told that they will be called back within a short time; others have been out of work, but they have signed up for a job to which they have not yet reported. At present these workers are counted by the Census as being employed, although they are shown separately, so that the employment figures can be readjusted if necessary. Obviously, we could count them as being unemployed, and no doubt many of them would be entitled to draw unemployment benefits while they are off the job.

The question is, what are the figures for? What economic and social policies are determined by them? Let me remind you that the original monthly report on the volume of unemployment in the United States was initiated by the Works Progress Administration in 1937. The objective was to find out how many of the unemployed needed placement on government work projects. From this point of view, those workers already attached to a job were not available for such government work. Even in today's labor market this group is in a different position from most of the unemployed; a worker who expects to be called back to his own firm in a few weeks is not in the market for anything more than a temporary job. Neither is the man who has signed up for a job in the near future.

Second, there are two other classes of workers who need to be carefully differentiated; namely, new entrants into the labor force and those retiring from it. In general, the Census would count these in the unemployed if they indicated that they were seeking work. By contrast, I might mention that in at least one foreign country—and possibly many others—the new entrant is not counted as unemployed until he has first held a job. Thus, in the United States in June of each year we are likely to get a sharp rise in the number of unemployed because the young people coming out of school are entering the market for temporary summer jobs. In some foreign countries, these would never be counted as unemployed at all.

In the next place, there are the part-timers; that is, those who normally work part-time and who do not want a full-time job. Yet when they lose that part-time job, they are counted as full-time unemployed. Perhaps we ought to have a breakdown of the unemployed in order to find out how many of them want only a part-time job.

¹ Manuscript not received.—Editor.

Still another group who constitute a knotty problem are the seasonally unemployed. The off-season in some industries is comparatively short; in others it may last for months. If these workers are firmly attached to their industry, their need is for strictly temporary work, spanning the seasonal gaps.

The answer to this problem is that we need to know a great deal more about the unemployed: who they are, where they are, what their specific problem is? Fortunately the Census Bureau is this year expanding its sample for the *Monthly Report of the Labor Force*; thus making possible the development of more detailed data than we have had. Likewise, Secretary of Labor Mitchell has instituted a program of sampling each month the unemployment compensation claimants in the states, who constitute some 50-75 per cent of the total volume of unemployed in the country. Since these unemployment compensation claimants are workers with previous work experience, they constitute an important segment of the unemployed, particularly from the point of view of social and economic policy.

There is another important point which is often not fully appreciated by the general public; namely, there are oftentimes labor surpluses and labor shortages existing side by side at the same time. A distressed area with a substantial labor surplus may be within a couple of hundred miles of an area of labor shortage. Even in the same community there may be thousands of unemployed registered in employment offices while there are hundreds of jobs unfilled for lack of qualified workers. In other words, the workers and the jobs do not fit. The larger problem for industry and the community is the mutual adaptation of the labor force and the available jobs.

The theme which Dr. Nourse announced for this program is the relationship of all this to economic growth in the nation. This leads me to say a few words about labor turnover. Some workers voluntarily quit their jobs because they are seeking better ones. In times of business recovery, such as 1955, the volume of quits in industry may be two to three times as large as the volume of layoffs. This is the worker's "free enterprise." If worker mobility is an important factor in economic growth—and I believe it is—then this turnover may actually be a positive factor in promoting growth. The same might be said for the employer's layoffs. The worker thus may be forced out of a declining industry and may eventually find a job in an expanding one. I am not minimizing the significance or the tragedy of unemployment. I merely want to emphasize that under favorable circumstances it may be a positive factor in our economy.

LAZARE TEPER: Dr. Lubin's¹ paper successfully high lights the many shortcomings of the available data on the multivaried aspects of the structure of unemployment. Many of the difficulties encountered in the development of meaningful information on unemployment arise from the frequently elusive nature of the phenomenon. Little difficulty in classification arises when a given individual out of work is actively seeking employment. The situation, however, is not as clear cut in many other instances. An individual who is not at work because bad weather interferes with gainful activity and who is

¹ Manuscript not received.—Editor.

laying over until weather improves and permits the resumption of work is classified by the Bureau of the Census as "employed," although his income during such period is nil and his willingness to work is frustrated by forces beyond his control. An individual who is seeking work during the survey week and who obtains a job or acquires a business to begin at a subsequent date is also treated as among the "employed"; yet during the survey period his income from economic endeavor was nil and he would consider himself as unemployed, out of work. A similar situation arises also in the case of those on temporary layoff who are waiting to be called back to resume work.

The situation may be somewhat more complex in the absence of work opportunities in an individual's customary occupation in the area of his residence; or with a change in employer hiring practices with a consequent reduction in the demand for workers of a given sex, age, or race. It is of interest to note that several special studies made by the Census Bureau revealed that on further questioning a number of individuals, otherwise classified out of the labor force, could be deemed as available for employment if job opportunities did exist; this segment of the population ranged in size from 11.2 to 72.8 per cent of the number otherwise classified as unemployed, depending on the particular survey. (See Gertrude Bancroft, "Current Unemployment Statistics of the Census Bureau," a paper given at the Conference on Measurement and Behavior of Unemployment, September, 1954.)

The inescapable vagueness of many aspects of the unemployment phenomenon tends to exaggerate mobility in and out of the labor force. Thus many working women also tend house as a secondary occupation; when the outside demand for their labor subsides, they may devote a greater portion of their time to household chores, without abandoning either the intention or the hope of working for pay should opportunity present itself. The measurement of their labor force status, subjective in the face of the available employment opportunities, thus may not truly reflect either their desire or need for gainful employment. Distortion in the movement in and out of the labor force is, of course, compounded in the case of those groups where discrimination in employment is known to exist, as in the case of women, older people, and nonwhites. In part the existence of such discrimination is reflected in some of the data presented by Dr. Lubin showing that women typically have higher unemployment rates than males and nonwhites greater than whites. Duration of unemployment is also greater in the case of these groups, as is also the case with the older people. Discrimination in employment is also graphically portrayed by the studies of hiring restrictions in the different Illinois communities which enabled Elizabeth J. Slotkin to classify them as the "sex specification" towns, the "age specification" towns, and the "no age or sex specification" towns (her "Studies of Individual Characteristics of Unemployed Workers," a paper given at the Conference on Measurement and Behavior of Unemployment).

Dr. Lubin properly points out that the over-all data on unemployment are inadequate for many types of social and economic policy formulation. To a considerable degree, the data may be made much more useful by revising the existing system of classifying the status of an individual in relation to the

labor force on a basis of a system of priorities which assigns him to a single controlling category and its replacement by a multipurpose classification which permits the classification of an individual by more than one attribute which describes his degree of attachment to the labor force and recognizes the changing patterns of his status within the labor market. (See Lazare Teper, "The Reliability and Meaning of Employment and Unemployment Statistics," in the *American Statistician*, February, 1955, pages 15ff.)

Supplementation of national data by localized information and by analytical studies, as urged by Dr. Lubin, is of paramount importance. The problems of technological change generally—and of automation more specifically—cannot be fully appraised through a review of macroscopic data. Technological innovations may bring in their wake basic changes in the nature of demand for labor, including displacement of specific skills and individual workers. Even if the long-term effect of such innovations is beneficial to society at large, the short-term effects on specific groups of workers, industries, or communities may be severe. More information is therefore needed for the development of better national policy for maximizing labor utilization. We must learn how to cope with local pockets of unemployment, how to adapt jobs to the potentials of available manpower, how to minimize the social and economic impacts of unemployment. This, as I understand it, is the basic theme of Dr. Lubin's presentation.

ECONOMIC GROWTH X. URBAN GROWTH AND DEVELOPMENT

THE SPREAD OF CITIES*

By DONALD J. BOGUE

University of Chicago

The spread of cities over broad territories was a movement that began to pick up speed about 1920 and has been especially rapid since World War II. The aim of this paper is to study the suburban process in terms of acres of land consumed and to link land consumption to population growth. The main goal is to observe more directly the process of land conversion in relation to population change and to write simple equations that express this relationship. Greatest emphasis will be placed on one particular aspect of the problem: the conversion of land to nonagricultural uses in the vicinity of growing metropolitan centers.

Two driving forces seem to underlie the outward thrust of the perimeter of urban land use: population growth and a search for less congested dwelling and business sites. Population growth causes cities to spread because it is the urban places—and especially the metropolitan areas—that are absorbing population growth. During the half century 1900-1950, the population of the United States grew by about 75 million persons, which was very nearly a doubling in size. Despite the fact that the 147 principal standard metropolitan areas of 1950 comprised only 40 per cent of the nation's total population in 1900, they received 72 per cent of the population increase between 1900 and 1950. In the 1940-50 decade, they received almost 80 per cent of the population increase. Meanwhile, the farm population has declined in number and the hinterland village population has grown comparatively little. Much of the population growth outside metropolitan areas is that of individual small and medium-sized hinterland cities, many of which will eventually attain the status of metropolitan centers.

The decongestion of population has been followed by a similar,

* The present paper is a condensation and abstract of a monograph entitled *Metropolitan Growth and the Conversion of Land to Nonagricultural Uses*, Studies in Population Distribution Number 11 (Scripps Foundation, 1956). It is part of a long-range program of research in the field of population distribution, the funds for which were granted by the Rockefeller Foundation. The author wishes to acknowledge the invaluable assistance of H. H. Wooten and James R. Anderson, of the Production Economics Research Branch, Agricultural Research Service, U.S. Department of Agriculture; John Bernard, of the Soil Conservation Service; and Ray Hurley, Chief of the Agriculture Division, U.S. Bureau of the Census, in making available materials for use in this study.

though less extensive, outward diffusion of economic activities. For reasons of national defense, to follow their markets, and to gain advantages from less congested location, many commercial and industrial establishments have also located in peripheral areas.

Official census statistics for the land area and population of cities are unable to reveal the full extent and rate of this movement, because city boundaries cannot be extended outward fast enough to encompass it. Even the new census definition of urbanized areas (which showed that 64 per cent of the total population was urban in 1950) fails to delimit the point at which the land has been removed from farming or other rural use and is in the process of being converted to uses pertaining more directly to the city. Much suburbanization consists of building one-family dwellings along all-weather roads, frequently without development of adjoining land. For this reason, just outside the boundaries of urban settlement, however defined, there is a broad ring of rural-nonfarm settlement of families that is also tied to the central city and its economy. A high proportion of the families in metropolitan areas who report they live on farms actually are only part-time farmers who derive a major share of their livelihood from nonfarm employment.

It has been pointed out that the spread of cities is a threat to the future food supply of the nation. With a growing population, the nation must anticipate a greatly increased demand for food. At some time in the not too distant future the present ability to produce agricultural surpluses may disappear. At that time, agricultural land wastefully used to permit "urban sprawl" may be needed to feed people. On the other hand, the added population must live in houses; it must have play space and work space. New factories, stores, parks, playgrounds, streets, airports, parking lots, and other nonagricultural facilities must be provided. These too require space. The intent of this paper is to assemble and organize some basic information with which to think about this dilemma. The author himself has no opinion with respect to what should be done about it and makes no recommendations.

Major Uses of Land in the United States

Continental United States is comprised of about 1.9 billion acres of land, or slightly less than 3 million square miles.¹ This land has four major types of use: as cropland, as pasture, as forest and woodland, and as sites for nonagricultural activities other than forestry industries. The nation's food is derived, of course, almost entirely from cropland

¹ The facts summarized in this section are taken from H. H. Wooten, *Major Uses of Land in the United States*, and *Supplement to Major Uses of Land in the United States; Basic Land Use Statistics, 1950* (U.S. Department of Agriculture Technical Bulletin 1082 and supplement, 1953).

and pasture land. Urban land is included in the fourth category. In the forty years from 1880 to 1920, the acreage of cropland more than doubled, but in the last thirty years the acreage of cropland has remained nearly constant at about 400 to 413 million acres, which is only about 21 per cent of the total land area. In 1950, forest and woodland was 32 per cent of the total, pasturage was 37 per cent, and the other nonagricultural land was about 10 per cent.

In 1950, urban areas (defined very generously to include settlements of 1,000 or more inhabitants) occupied about 18,279,000 acres. From one point of view, the urban area appears to be a surprisingly small part of all territory. It is only about 1 per cent of the total land area. The acreage of land in highways and railroads is larger than this by about one-fifth. More land is used in parks and also more land is devoted to national defense than to cities. The land in urban places is about 56 per cent more than the land devoted to farmsteads. If all of the 18 million acres of urban land in 1950 had been taken from the nation's cropland, the territory actually used to build American cities would have depleted cropland by 4.5 per cent.

The Conversion of Land to Nonagricultural Uses

If cities are growing rapidly, they may now be claiming farmland at a very rapid rate, even though they may have claimed only a comparatively small fraction of the total supply thus far. Mr. Wooten makes a rough estimate of the rate at which agricultural land is being absorbed for urban-related uses as follows:

Growth of population and spread of residences, shopping centers, and factories into rural areas have called attention to these demands of the supply of land available for agriculture. Although exact figures are not available, records of incorporation of land into towns and cities, construction of factories, highways, airports, and reservoirs, and new homes during the last ten years show that probably as much as a million acres of rural land is absorbed annually by urban and related nonagricultural uses. Much of the land taken up for residential and urban purposes was tillable. As with agriculture, highways and urban developments tend to follow level and valley areas. . . . (*Ibid.*, pages 11-12.)

Additional information concerning the conversion of cultivable land to nonagricultural uses was recently assembled by the Soil Conservation Service of the Department of Agriculture. It was found that Wooten's estimate was substantially correct:

Each year over 1 million acres of cultivable land is going into homesites, industrial and commercial developments, defense establishments, highways, airports, and other nonagricultural uses. What will the future trends be in this respect? It is only reasonable to surmise that with the continued rapid growth of suburban developments, superhighways, industrial expansion, etc., that the withdrawal of good land from agricultural use will continue and accelerate, perhaps, in the years ahead. If continued at the present rate, this withdrawal could have a substantial bearing on the future ability of agriculture to meet the demands of the Nation. (Donald A. Williams, "Soil and Water for the Future," *Soil Conservation*, December, 1955.)

*Land Conversion and Population Growth
in Standard Metropolitan Areas*

The data summarized above do not link changes in land use directly to population changes. It would seem that one of the most basic questions remains unanswered: Under present conditions, how many acres of land are removed from agricultural production per 1,000 population increase? The procedure for discovering more directly the relationship between population growth and land conversion is clearly indicated: (1) Select a sample of areas where population increase is taking place and measure the amount of population change during a specified interval of time; (2) for each such area, measure the change in the use of land, by type of use, during the same time span as that used for population; (3) for each area, relate the change in the use of land to the change in population; (4) by comparing the observations for all units in the sample, try to discover average tendencies and attempt to account for variations and fluctuations. To the extent possible, the above experiment should be repeated for several intervals of time, in order to chart trends. In idealized form, this is the design of the present study. Two samples of areas were chosen for analysis: (1) the 147 SMA's that had a total population of 100,000 or more in 1950 and (2) the soil conservation districts of the state of California, a state which is an especially interesting case, not only because it has experienced rapid population growth in some of its counties and population decline in others, but also because the entire state has just been made the subject of a special survey of land conversion by the Soil Conservation Service. The remainder of the present paper is devoted to the analysis of the materials for standard metropolitan areas. For an analysis of the California material, the reader is referred to the larger report cited above.

Because the conversion of land from agricultural to urban uses has no boundary recognized in official statistics of urban populations, the problem must be attacked in another way. One possibility is to note the amount of decrease of agricultural land with increase in urban population (rather than noting the amount of increase in urban land with increase in urban population). At first this may seem to be an awkward and indirect approach, but actually it views the problem exactly as it usually is stated: Is the spread of cities encroaching upon our food supply? If the answer to this question is affirmative, we should be able to observe a decrease in the number of acres of agricultural land in the vicinity of large metropolitan areas from one census to the next, and to relate the amount of this decrease to the amount of population growth that takes place in the area during the intercensal period. Furthermore, if there is a consistency in the process, we should be able

to formulate an average of the number of acres converted per 1,000 population change.

Following the study design outlined above, the land use of the 147 SMA's was assembled (by adding statistics for the component counties) from the Censuses of Agriculture for 1930, 1940, 1950, and 1954. The following classification of land use was employed:

I. Agricultural land (land in farms)

- a) Cropland (including cropland pastured and cropland not harvested)
- b) Pasture land (including woodland pastured, but excluding cropland pastured)
- c) Woodland and forest land, not pastured
- d) Other farm land—farmsteads, farm roads, wasteland in farms, miscellaneous other nonwooded farm land not tilled or pastured

II. Nonagricultural land—urban, suburban, and other land in the standard metropolitan area not located on farms

For the reasons stated above, the nonagricultural land cannot be classified into types. Instead, it must be treated as a residual "all other" category. (In fact, it is obtained by subtracting the land in farms from the known total area of the counties that comprise the standard metropolitan area.)²

Statistics of land use in 1949 and of change in land use in the twenty years of rapid urban spread, 1929-49, were tabulated for each SMA individually and are so reported in the full report, using the above classification of types of land use.³ Statistics for change in land use in the five years 1949-54, based upon the 1954 Census of Agriculture, are also reported there for each SMA.

The population of each SMA as of 1950, and the change in population during each decade, 1900-1950, were tabulated for each SMA. These tabulations permit changes in land use to be related to changes in population. An effort was then made to reduce these data to simple summary relationships.

It was found that the data for these regions where there had been extensive reclamation (irrigation and drainage) projects could not be used, for the loss of agricultural land through conversion had been obscured by the creation of new agricultural lands. A group of 75 SMA's, those lying in economic regions I, II, III, and V (the eastern seaboard, around the Great Lakes, and in the Midwest), were assumed

²As is shown below, this leads to certain inaccuracies in some instances. Where farms lie in two counties, the census allocates the entire farm to the county where the farm headquarters are located. The extent to which this procedure biases the data for SMA's in the direction of underestimating the amount of nonagricultural land is unknown but is thought to be serious only in a few areas of the West and the Southwest.

³The inquiry of the Bureau of the Census concerning land use relates to the actual use of the land in the growing season preceding the crop season preceding the enumeration. It is customary to identify the statistics with the year of the actual land use rather than the year of the census. The censuses of 1950, 1940, and 1930 were taken in April, and hence report land use for 1949, 1939, and 1929. However, the 1954 Census of Agriculture was taken in October, and for this reason its land use statistics refer to the same year as the census.

to represent most nearly the condition in which all SMA's will be placed sooner or later: the land readily reclaimed has already been brought into production and henceforth the amount of farmland reported at each census will reflect directly the acres removed for urban use. On the basis of the agricultural land-use statistics for these SMA's the following illustrative calculations were made.

In the four regions taken as a group, the population increased by 9.4 million between 1930 and 1950. This was 45.8 per cent of the total population increase for the SMA's. From April 1, 1950, to October 1, 1954, the date of the 1954 Census of Agriculture, the nation increased by 11,401,000 persons. Assuming these four regions captured 45.8 per cent of this increase also, they are estimated to have grown by 5,221,000 persons. Their total increase for the period 1930-54 was therefore 14,616,000. During the period 1929-54, the area lost a total of 3,476,000 acres of farm land. This was equivalent to 238 acres of land per 1,000 population increase. This average value for the 75 SMA's, covering a period of twenty-five years, may tentatively be accepted as a crude measure of the average situation one may expect throughout the nation ultimately. On this assumption, the "average" or "medium" rate of conversion of land to nonagricultural use in metropolitan areas as a result of population increase may be expressed by the simple equation

$$L = \frac{238P}{1,000} = .238P, \text{ where} \quad (1)$$

L = acres of land in farms converted to nonagricultural use

P = increase in total population of the SMA

The fact that the loss of cropland and pasture land has greatly exceeded the loss of farm land may lead to the conclusion that certain changes in the classification of farm land even within these "stable" regions underestimate the true extent of loss of farm land. In this case, a better estimate of the loss of farm land with increase in population could be taken as the estimated actual loss in cropland and pasture land combined (neglecting entirely the changes in woodland and "other farm land"). For the period 1929-54 for the 75 SMA's, this value is 264 acres per 1,000 population increase. Since this assumes that all urban growth occurs on productive farmland and since it covers a period in which the movement toward decongestion was proceeding at a fairly rapid pace, it may tentatively be regarded as a "high" estimate of future land use per 1,000 population growth. The resulting equation is

$$L = \frac{264P}{1,000} = .264P \quad (2)$$

A more conservative view may be that the limits of land reclamation are rather far removed and that the current suburbanward movement is a mixture of both decongestion and population growth, and consequently both of the above expressions estimate too great a decline in farm land with increasing population growth. It may be argued that the time required for commuting has already increased to such a length that people will prefer to live at higher densities in present suburban areas rather than undergo longer trips to work. Under this condition, the 1929-54 average of total farm land lost for the more densely settled Region I, the Atlantic Metropolitan Belt, comprised of 22 SMA's, may be taken as a "low" estimate of average land use by population growth. This statistic is 172 acres per 1,000 population increase, and the equation is

$$L = \frac{172P}{1,000} = .172P \quad (3)$$

It must be emphasized that these calculations (derived by the crudest of estimating procedures) are merely made to bring out the implication of observations for recent periods of time in areas that exhibit a more or less persistent decline in agricultural land with population growth in a way that one could expect all metropolitan areas to show eventually. It might be pointed out that these equations imply an average density of settlement that is reasonable: high—2,543 persons per square mile; medium—2,689 persons per square mile; low—3,743 persons per square mile.

This does not suggest that the suburban areas actually are settled at these densities. A part of the population growth accrues to the central city and raises average density there.

An Estimate of Future Conversion of Agricultural Land

The United States Bureau of the Census has released revised estimates of the future population of the nation to the year 1975.⁴ As a rough indication of the amount of agricultural land that may be expected to be converted to nonagricultural uses in the 147 SMA's within the next twenty years, the "medium" land conversion equation has been applied to the population increases called for by the "low" estimates of the census, assuming that as a group these SMA's will receive 75 per cent of the population increase.

⁴U.S. Bureau of the Census, "Revised Projections of the Population of the United States, by Age and Sex, 1960 to 1975," *Current Population Reports*, Population Estimates, Series P-25, No. 123, October, 1955.

TIME	ACRES (In Thousands)
1955-60	2,000
1960-65	1,756
1965-70	1,799
1970-75	1,881
	<hr/>
Total	7,436

On the supposition that nonpastured farm woodland will not be used a great deal for urban uses, these estimates call for a decrease of 7.4 million acres of cropland and pastureland in SMA's within the next twenty years. This represents 14 per cent of the 1950 agricultural resources of the SMA's. In considering these figures, it must be kept in mind that population growth can slacken suddenly almost to a standstill; the land conversion estimates are only very crude improvisations constructed from the scattered evidence available; and a suspension of building activity by a recession could slow urban spread even though population were to continue to grow. It must also be kept in mind that the above is an estimate of land conversion in the immediate vicinity of selected SMA's. The total conversion of farm land to nonagricultural land may be expected to exceed this amount. Mr. Wooten's estimate of 1 million acres a year (which is entirely consistent with the findings of this study) could be used to make a rough estimate.

Summary and Implications

1. From the viewpoint of conserving scarce agricultural resources, the nation is following a highly efficient course in the spatial location of its population increase: It is lodging added population in metropolitan and urban areas at high densities rather than permitting it to remain on the land where it would use up crop space in low density settlement. This also prevents the subdivision of fields into units too small for efficient farming. However, the general urbanward movement of population increase need not imply that the extent of urban spread over the countryside is optimal. Whether cities should be even more concentrated than they are or whether suburbs should be encouraged to spread even more broadly is a matter for public policy.

2. The urban economy seems destined to make intensive use of all land that has already been converted from agricultural use and to require the conversion of additional land. Even if land were being prematurely and wastefully converted from agricultural to nonagricultural use at the present time, there may be a genuine need for this land a few years hence—unless conversion takes place in the vicinity of urban

centers that are not destined to grow. Thus, a decision concerning the rightness or wrongness of current conversions should be viewed from the perspective of anticipated future land requirements and the appropriate timing of the conversion. Practices of converting land may be thought to be premature from any one of several sets of standards, such as maintaining the food supply (not a problem at present); minimizing the costs of providing water, sewer, and other urban services to residences in the suburbs and making available adequate police, fire, and health protection; or avoiding the possible costs of clearing the land of flimsy or low-density residential or other structures in order that the land may be redeveloped for more intensive urban use later.

3. The spreading of cities is an unmistakable drain upon the supply of agricultural resources. In some areas the conversion of agricultural land to urban uses has already reached the extent of consuming 15 or 20 per cent of the total supply of tillable land. In the nation as a whole, this decrement is less than 5 per cent of the total agricultural resources and has been fully compensated by reclamation, especially by irrigation and drainage. The population growth expected for the next two decades will make further reductions in cropland.

4. Within the metropolitan areas themselves, the process of replacing land used for urban purposes has about reached a limit. The 1954 Census of Agriculture showed that in all except a few SMA's the conversion of farm land exceeded the increase through reclamation. Hereafter, population growth and suburbanization may be expected to lead inevitably to a decrease in the agricultural resources within the metropolitan area proper.

5. By relating increments in population to decrements in agricultural land in standard metropolitan areas and in the state of California, this paper has attempted to develop simple equations that would express the amount of land that would be converted per 1,000 population increase. The problem is not a simple one, and fully satisfactory results could not be obtained. The metropolitan market seems to have an independent effect upon submarginal land in its immediate environs. The statistics are complicated by problems of definitions. Although the expressions developed have a certain degree of plausibility and consistency with the facts at hand, they are more illustrative than predictive.

6. The subject of metropolitan agriculture has not been given the research attention it deserves. The present study explains only one of the many aspects of the influence of metropolitan centers upon farming and farm life.

SOME EFFECTS OF ECONOMIC GROWTH ON THE CHARACTER OF CITIES

By CHESTER RAPKIN
University of Pennsylvania

Throughout history economic growth has been organically related to the development and form of urban areas. It is well known that the rise of the modern town harks back to the revival of commerce in Western Europe and that the techniques of mass production introduced by the industrial revolution unleashed the greatest surge of population growth and city building the world has ever known.

The industrialized world would seem to be inconceivable without the modern city. The major portion of the population of the United States (and of most Western nations) now resides and works in urban areas. These areas contain the bulk of our national wealth and are the most important source of the flow of goods and services that constitute our national income. It is here, too, that most of the income is consumed. Our cities have made enormous contributions to the productivity of our nation by providing an environment conducive to economic growth.

During the past half century, our economy has been characterized by rates of change that are more commonly associated with projectiles than with social processes. Real income per person has more than doubled at the same time that the hours of labor have shrunk by one-third—from more than sixty to less than forty per week. Although some of the increase in per capita income is attributable to the rise in the ratio of work force to total population, most of it is due to the increase in output per worker, which has tripled since the turn of the century as a result of the increased skill, health, and education of the modern worker, the rapid strides in technology, and a threefold increase in the amount of reproducible capital per worker. Concomitant changes include a shift from agricultural to nonfarm occupations, and within the latter group from the manufacture of goods to the production of services.¹

Of profound social significance has been the tendency towards equalization of income. Whereas the upper 1 per cent of the population received 15 per cent and the top 5 per cent received 30 per cent of national income in the period between the two world wars, in the

¹ Simon Kuznets and Raymond Goldsmith, *Income and Wealth of the United States: Trends and Structure* (Cambridge, England, 1952); Colin Clark, *The Conditions of Economic Progress* (London, 1940).

years following World War II, these sections of the population received only 9 and 18 per cent of total income, respectively (Simon Kuznets, *Shares of Upper Income Groups in Income and Savings*, National Bureau of Economic Research, 1950). Thus, as a result of the rise and greater dissemination of the national product, most American families have experienced a sharp increase in standard of living, and for all but a few, the acquisition of the bare necessities of life is no longer a struggle.

It is not unexpected to find that these massive economic changes have had a significant, if not pervasive, influence on the city. To discuss all of the implications in the allotted time is manifestly impossible, and I have therefore selected three topics—housing, traffic, and the distribution of land uses—for more extensive treatment.

Housing

The leveling of income and the widespread availability of the automobile have made possible the realization of the great American dream of a home in the suburbs for masses of people. Home ownership (and three out of five nonfarm families are now home owners) has fused two currents in American life: the pioneer desire for independence and the European search for status and security. Since the end of World War II, over ten million new dwellings have been built and 85 per cent of these have been single-family homes. By and large, the new residences have been modest in scale. In 1955, the average new dwelling was 1,170 square feet in size. Half of the units started that year sold for less than \$13,700 and two-thirds were under \$15,000 (mimeographed paper, "Characteristics of New Housing," Bureau of Labor Statistics, November 15, 1955). The greater amount of leisure time and the virtual disappearance of the house servant has made for openness in home planning and placed emphasis on ease of maintenance. The modern house has fewer separate rooms, more multi-use areas; it results from and makes for less formal modes of family living.

Most of the new residential structures have been located in areas that surround our cities, and the resultant redistribution of population has had a profound influence on metropolitan life. Much has been written and said about this phenomenon.² Some have cited the rapid rise of population on the periphery as evidence of the decline of the central city while others have maintained that since the central areas were built up, growth could occur only on the outskirts. There has been considerable discussion of the effect of suburbanization on the lengthening journey to work and of the resultant traffic and transportation

² For example, see Richard U. Ratcliff, "Efficiency and the Location of Urban Activities" in *The Metropolis in Modern Life*, Robert M. Fisher, ed. (1955).

problems; the growing tendency of middle income families to move to the suburbs, leaving a two-class society in the central city; the tax base and the general financial structure of the central city and the suburbs—all leading to the inescapable conclusion that the city and the suburb have become one continuous community and that some type of area government is necessary, either by federation or by the use of authorities, to insure a balanced urban development and an equitable distribution of costs and benefits.

The rise in income has served to reduce some of the more objectionable features of the housing supply. Between 1940 and 1950, bathtubs and other types of plumbing were to be found in an increasing proportion of the housing stock, and fewer units were below standard in providing adequate shelter from the elements. But despite improvements of this type and the addition to supply of large numbers of new units, housing remains one of the problem sectors of the economy. One in ten American families occupies a dilapidated dwelling; an even larger proportion of units still lack commonplace sanitary facilities.³ Over two million families live in dwellings which are in themselves adequate but which are located in slums or blighted areas. Moreover, the standing stock of dwellings grows older each year. In 1950, 46 per cent of the urban units were over thirty years old, and virtually all of these are still in use. In general, the housing supply is receding from standards of occupancy and environment according to which the dwelling should be adapted to the physical, social, and psychological requisites of family living, should be located in an area free from hazards, and provided with adequate public services.

For many, a low standard of housing is a function of low income. Notwithstanding the progressive equalization of incomes in the past decade there is still a substantial proportion of the population for whom the expenditure necessary to secure adequate housing would absorb all, or a major part, of family income. These families constitute a special sector of the population today. Unlike the thirties, when the lowest income group was more or less a cross-section of the nation, the bottom of the income distribution today consists of individuals or families who are laboring under some special physical or social disability. A recent Congressional study reveals that this group consists of the physically disabled, broken families, aged persons, recent immigrants, and minority groups such as Negroes and Spanish Americans.⁴

But aside from the low-income groups, there is evidence that housing has been losing ground to other outlets for consumer expenditures,

³ *Census of Housing: 1950; United States Summary*, Vol. I, Part 1 (1953).

⁴ *Low Income Families and Economic Stability*, Report of the Subcommittee on Low Income Families of the Joint Committee of the Economic Report, 81st Cong., 2nd Sess., Document No. 146 (1950).

such as automobiles, television sets, and vacations.⁵ Despite the increase in real income, the average value of a new dwelling unit (adjusted for changes in construction cost) has shown a long-term decrease—a decrease that cannot be explained by any substantial gains in construction productivity. Compared with previous years, people have been getting less house, but we have no way of knowing whether they are less satisfied with the current product.

During the last two decades, the per capita value of housing has declined in absolute as well as in relative terms, so that even when corrected for the reduction in average household size, the decline is still evident. While a rising standard of living is usually accompanied by the expenditure of a smaller proportion of income on necessities, housing is the only necessity that has shown an absolute decline. In terms of shelter alone, the contraction is even greater, because the house of today contains a large amount of equipment that was not present in the dwelling of 1900.

The housing programs of the government, both directly and indirectly, have helped to control, if not arrest, this trend. Through the medium of public housing, families of low income have been given subsidies which are expended on housing at the source. Mortgage guarantees and insurance programs coupled with modest down-payment requirements and level payment loans have fostered the purchase of new homes. More recently, efforts have been made to encourage and aid the conservation and rehabilitation of dwellings.

Withal, the demand for new residential construction has come almost entirely through population growth. Over the past half century, the number of new units has tended to equal the addition to the number of households. The replacement market has been of little or no importance. On the Lower East Side of New York, one of the oldest settled areas in the country, the average annual rate of demolition between 1910 and 1940 was slightly over 0.8 per cent and more than half of this was due to some sort of public action.⁶ Within recent months the Bureau of Labor Statistics has found that roughly 250,000 to 300,000 nonfarm dwelling units, or 0.6 to 0.7 per cent of the stock, have been withdrawn from the supply during each of the past few years.⁷ While this volume may be sufficient to maintain a level of new construction somewhat in excess of a million units a year, despite a decline in net household formation, it by no means constitutes a scale

⁵ Louis Winnick, "Housing: Has There Been a Downward Shift in Consumers' Preferences?" *Quarterly Journal of Economics*, February, 1955. Also see Leo Grebler, David M. Blank, and Louis Winnick, *Capital Formation in Residential Real Estate: Trends and Prospects* (Princeton, forthcoming 1956).

⁶ Leo Grebler, *Housing Market Behavior in a Declining Area* (1952).

⁷ "The Vacancy Rates and Withdrawals from the Housing Supply," *Construction Review* (Bureau of Labor Statistics), July, 1955.

of replacement necessary to maintain an acceptable standard of housing. In fact, many sound houses were demolished to make way for public improvements or private nonresidential buildings, and these withdrawals reduced rather than enhanced the average quality of the housing stock.

Traffic and Transportation

Over the past half century the problems of urban transportation have been accentuated by four major factors: growth of population and land coverage of metropolitan areas; increasing specialization of activities; spatial segregation of activities; and failure to rationalize locational patterns of activities so as to minimize the necessity for movement. These developments under the best of circumstances would have resulted in increased transportation costs for the community. As long as efficiencies of scale were to be derived from the increased size of a city, unit transportation costs decline in spite of the rise in aggregate costs. Today there is little doubt that some cities have developed beyond the optimum point; so that transportation costs are mounting in the average as well as in the aggregate.

The rise in transportation costs was bound to occur when the factors associated with metropolitan development were played against the background of a street network designed for a less populous and more leisurely era, a public transit system that can be constructed or adapted only at enormous expense, and a national predilection for the use of private motor vehicles. Under these conditions, difficulties are compounded, social and private costs soar, and frictions and waste proliferate. The obvious day-to-day frictions—congested roads, overcrowded subways, lack of adequate parking space, and the dearth of modern truck accommodations—are so universal that they have become a major preoccupation of citizen, businessman, and municipal administrator. Statisticians have calculated that in 1950 user-operated and locally purchased transportation accounted for 11 per cent of aggregate consumer expenditures in the nation, or slightly more than the total residential rent bill that year (*National Income and Product, 1929-1950*, U. S. Department of Commerce, 1951). In addition, expenditures by business firms for the transportation of goods and persons in urban areas probably exceed this total. What proportion of the combined aggregate is wasteful is not known, but some indication of the magnitude is given by the fact that in Manhattan alone it has been estimated that the cost of traffic congestion exceeds 500 million dollars a year ("The Cost of Traffic Congestion and Traffic Accidents in City of New York," Citizens Traffic Safety Board, offset, 1953). Other studies have found that almost 40 per cent of the over-all working time of trucks and semitrailers was spent in delays due to congestion or the

absence of adequate loading or unloading facilities (Charles A. Goodwin, "Elements in Multiple-Stop Pickup and Delivery Operations in Urban Areas 1949-1950," offset, Boston).

These are just some of the indications of the time and money costs. How is one to cast up a total for the energy expended, the inconvenience incurred, the tension generated, or the indignities suffered on a crowded road or during a subway rush?

By and large, cities have dealt with traffic problems in two ways: first, by the regulation and control of traffic and, second, by the provision of new traffic facilities. There is no doubt that actions in these areas have been extremely valuable in ameliorating congestion. The fact remains, however, that control of traffic is undertaken within the existing physical channels of movement—channels that are frequently inadequate. The construction of new facilities is a very expensive undertaking, and frequently the new facilities are well on their way to obsolescence at the moment they are placed in operation.

Because these problems have been so acute, there has been a tendency to concentrate attention on short-run solutions. The basic approach for long-run solutions is to be found in the analysis of the relationship between movement and land-use patterns (Robert B. Mitchell and Chester Rapkin, *Urban Traffic*, 1954). Changes in one will produce changes in the other. Once these forces are clearly understood it will be possible to guide the location of buildings and establishments in the interests of traffic efficiency. This can be accomplished by bringing together establishments that have a high rate of mutual interchange, by removing from congested areas types of establishments that are not functionally required to be located there, and by separating land uses that generate conflicting or mutually antagonistic types of traffic.

In order to achieve these objectives it is necessary to know how the need for and the availability of various types of transportation and terminal facilities influence the public and private decisions that determine the locational distribution of urban establishments. The extent to which the transportation requirements of establishments and the available facilities mesh can be analyzed by determining the frequency, volume, and importance of movement between an establishment (or a group of establishments) and the other with which it does business. These contacts or interactions have been termed "linkages," and a fuller understanding of these relationships will provide an important guide to a spatial distribution of residences and business establishments that will serve the objective of minimizing necessary movement.

Admittedly, the realization of these goals is still in the future. But if they are to be realized at all, we must begin thinking in these terms

and casting our research studies and action programs in this direction. And this is possible even within the framework of our immediate problems—those concerned with traffic management, the improvement of existing facilities, and the provision of new traffic channels.

Patterns of Nonresidential Land Use

The most evident changes in land-use patterns during the past half century have been those associated with population growth. Residential areas have extended into districts previously devoted to truck gardening or other agricultural pursuits, and the nonresidential uses of central business districts have pushed into the bordering residential areas. Within the distribution of nonresidential uses, land-use patterns have also responded to changes in the composition of productive activities and to developments in technology and business organization.

The trend toward services and distributive activities has been observed repeatedly in studies of the national economy. In the United States, as in other advanced industrial countries, the proportion of labor force employed in agriculture has declined, the percentage in trade, finance, government, and service occupations increased, with the remaining group changing little in their total share of labor force. The same trends are evident in the distribution of national income and aggregate payments by industry. As a result of this trend, the balance of activities within the range of urban life has also been shifting away from production towards distribution and services—a change that has had a formative influence on land-use patterns in urban areas.

This change has been particularly evident in central business areas where activities associated with the assembly of goods, such as manufacturing or wholesaling with stocks, have been declining. At the same time, administrative activities, business services, and retailing which involve the assembly of persons have increased.

This shift has been buttressed by changes in methods of production and distribution stemming from new developments in technology and business organization. The replacement of steam with electric power, for example, no longer required manufacturing plants to locate in multi-storied buildings, but made possible and preferable single floor operations. With the development of cheap mass transportation and the rise of the auto, large manufacturing plants could leave the center of the city and move to outlying districts where land is cheap and operations can be spread out. Another example, of perhaps more recent origin, is the change in the wholesaling business. Today, with standardization of items and purchase from catalogue or through specifications, a large section of the wholesaling business is conducted without stocks and no longer requires warehouse space. Instead, business is conducted by tele-

phone or personal contact from offices in the center of town. The section of wholesaling that is still goods handling has also changed its character. Years ago wholesaling was essentially a storage operation that could be conducted in multifloored warehouses. Wholesaling with stocks has now become more of a sorting and assembly process which requires a single floor for its efficient operation. In retailing, the marked trend from corner grocer to large supermarket has also changed the requirement for type of structure, size of lot, and location.

Harold Mayer cites an interesting example of the manner in which the changed design of ocean vessels has influenced waterfront land use:

Between the time of World War I and World War II, the tonnage capacity of the average freighter was about doubled; technical improvements in loading and unloading vessels cut the turn around time in port at least in half. As a result, fewer vessels are required today than was the case a generation ago. These technological changes have also affected the character of the port through their effects on storage facilities. Previously, only limited land space for storage was required; at present, twice as much cargo must be loaded in a much more limited time period, which fact requires increased land area for storage, for cargo must be brought to the port-side ahead of time and be ready for a loading the moment the boat is ready. As a result, land adjacent to the port which could be used for such storage space has become a much more important part of the port. Consequently, we find in the New York Harbor, for example, that the port facilities are shifting away from Manhattan to New Jersey and Brooklyn where much more land is available for storage facilities. ("Technology and Economic Conditions of Urbanism": a paper presented at Faculty Seminar on Population, Columbia University, January 22, 1951.)

Technological change and managerial innovation have not only influenced the locational requirements of the firms that adopted them, but the change in location of these firms has activated a series of reactions which have influenced the entire land-use pattern of an area. For example, the telephone and other long-distance methods of communication and control no longer make it necessary for the management of manufacturing firms to be located in the factory. The administrative offices can be located in office buildings in the central city at places convenient for the assembly of persons. Consequently, there will be a tendency for offices to pile up in big buildings and a concomitant generation of traffic. This in turn will drive out uses like wholesaling with stocks that are unable to operate in heavy traffic but will attract office services like printing, telephone, stationery, and some types of consumer services.

Despite the impressive catalogue of changes, one cannot fail to observe the essential continuity in the patterns of land use. In fact, considering the forces that tend to resist change—the durability of structures, the wide dispersion of land ownership, the rigidity of the street system, and the extent of underground utility installations—the degree to which the land-use pattern has been altered is indeed re-

markable and could only have occurred in response to the pressures of rapid economic development. It is the recognition of the fact of persistence, however, that has led to an increased acceptance by the community of the instruments of land-use guidance, regulation, and control. We have yet to face the baffling task of developing an approach to a distribution of land uses that is articulated with the requirements of present-day urban life and at the same time permits sufficient flexibility to accommodate the changes that are sure to come.

DISCUSSION

JOSEPH L. FISHER: Cities represent a force of explosive power on the American scene the staggering impacts of which will continue to be felt for many years to come. Urban population trebled during the first fifty years of this century; rural population increased by one-third. Control or guidance of the explosive force of cities can mean the difference between well-arranged and efficient living and disorderly and unbelievably inefficient living. It should be the business of economists—and especially regional economists—as well as other social scientists to inquire into the nature of this explosive force and into the conditions for its control. With foresight, imagination, and discipline, this force may be controlled for the benefit of all. Perhaps this is the least studied of the important problems now facing the American people.

The papers by Professors Bogue and Rapkin do much to open up to fuller view the size and character of the problem. Changes within cities, responding to technical improvements in transportation, population increase, the aging of structures, the desire of people for pleasant living, new concepts and methods of city planning, and numerous other factors, have been proceeding rapidly and with great persistence. Understanding these changes taxes the ability of urban economists, sociologists, political scientists, engineers, and planners. Most of these urban specialists seem to agree that slowly and inexorably we are falling behind in meeting urban problems in terms of desirable standards. As a result, more and more city people, new and old, move to the suburbs and surrounding countryside. Behind them these people leave a hard residue of problems: among others, the loss of taxable income, the loss of potential leaders in city affairs, the conditions for increasing crime and delinquency, and a transportation mess. Rapkin has dealt with a number of the changes within cities and the accompanying problems.

As people have moved out from the central cities or, more accurately, as an increasing share of the essentially urban population has located in outlying areas, another set of problems is posed. Among these are: the need for creating or improving political, social, and economic institutions in suburban and other previously rural areas; the provision of adequate modern transportation facilities, electricity, water and sewer lines, education, health, and numerous other facilities and services; and the conversion of land from its previous agricultural, pasture, forest, and wilderness uses to the more intense urban and suburban purposes. Bogue has opened up this whole subject for us by suggesting a statistical measure of the spread of cities by means of which the increase in urban population is related to the conversion of agricultural land to nonagricultural uses. As this relationship is tested and refined further, it will be possible to think more accurately, at least in aggregate terms, about the effects of the spread of cities. The rest of my discussion will relate chiefly to Bogue's paper rather than Rapkin's.

Bogue, it seems to me, has made an excellent beginning with the difficult

problem of relating conversion of agricultural land within standard metropolitan areas to growth of population. Many problems of definition, comparability of data, and necessarily indirect reasoning have beset him. To the extent I have been able to examine into these difficulties, I believe Bogue has done exceedingly well in handling them. A major possible weakness in Bogue's method is that it makes no allowance for the fact that not all land withdrawn from agriculture is converted to urban uses. Some of it undoubtedly becomes, and for a time at least remains, idle awaiting urban development. But since idle land of this kind may be the inevitable accompaniment of the rural-urban conversion, perhaps Bogue's equations are not misleading in this matter.

The data clearly indicate that, barring some unforeseen occurrence, looking ahead several decades, conversion of agricultural land to urban and other nonagricultural uses will continue in volume. I have put together the following table hastily, using Bogue's "medium" equation for relating population increase to land conversion ($L = .238P$) and assuming that 80 per cent of the increased population will locate in standard metropolitan areas (SMA).

Year	Estimated U.S. Population (Million Persons)	Increase in Population over 1950 in SMA's (Million Persons)	Land Converted from Agricultural to Nonagricultural Uses over 1950 (Million Acres)
1950.....	150	—	—
1955.....	165	12	2.8
1975.....	215	52	12.4
2000.....	300	120	28.6

I realize I have done some violence to Bogue's method in these rough calculations, and I have extended the estimates to the year 2000 which carries with it all of the difficulties that assumptions and relationships may change considerably looking that far ahead. The population estimates for 1975 and 2000 are my own; they are illustrative only. If Wooten's estimate is used (namely, that about one million acres of agricultural land, wherever located, are converted to nonagricultural uses each year), the figures in the last column above would be approximately doubled.

The total land area in standard metropolitan areas in 1949 was 132.6 million acres, of which 64.1 million acres were in farm land and 68.5 million acres in nonagricultural land. Using the land conversion figures in the last column of the above table, it works out that by 1975, assuming an unchanged total SMA land area, 51.7 million acres would be in farmland and 80.9 million acres in nonagricultural land. By the year 2000, the amount of land in farms would have diminished to 35.5 million acres, while nonagricultural land will have risen to 97.1 million acres. These estimates are exceedingly rough but do serve to indicate the magnitude of the change which may be in store for us. Of course, many qualifications would be in order.

Apart from the staggering problems of urban expansion looked at from the city side which are in view, there are serious readjustments from the

point of view of agriculture and other rural uses of land. These problems, it seems to me, will be exceedingly sharp and troublesome within the metropolitan areas. They will be far less difficult viewing the nation as a whole. The loss of 12.4 million acres of agricultural land within SMA's by 1975, however troublesome to those directly involved and to planners and others concerned with the conversion of this land, will not diminish seriously the total agricultural land of the whole country. Even assuming that the whole 12.4 million acres are subtracted from cropland (which clearly would not be the case since at least a fair portion of it would come from pasture and possibly some from woodland), the total reduction would only be about 3 per cent, whereas it would come to nearly one-half of total cropland in SMA's. Additional land brought under irrigation or provided with supplementary irrigation, or additional land drained so that it could be used for agricultural purposes, or even land cleared of forest would easily make up this small amount. Or a tiny increase in agricultural productivity on an annual basis over what otherwise might be expected would easily make up for any loss in crop production from the conversion of land to urban uses. Furthermore, the prospect is for continued surpluses of many farm crops. Of course, most of the reclaimed land is likely to be located outside of standard metropolitan areas. However, the fact should not be overlooked that agricultural land within SMA's is undoubtedly most favorably located in terms of markets, particularly for truck garden crops, and its loss, therefore, would be felt more keenly than the number of acres above would suggest.

The upshot of this is that the diminution in agricultural land within SMA's is not likely to create serious problems during the next twenty or more years so far as national agricultural production is concerned. Severe problems will be created, but these will be largely of a local character and will pertain to planning for the extension of cities outward into rural areas, the economics of local farm markets, the reservation of adequate recreation areas, and all manner of political and social matters within the metropolitan areas. Still in all, in looking ahead at the kinds of changes in land use which are going to be important, the conversion of the rural fringe area to urban uses should be given increasing attention by economists and other social scientists. The conversion of citrus farms in the Los Angeles area, of apple farms in New England, of truck gardens in New Jersey, of pasture in the vicinity of many midwestern and eastern cities, and of part-time white-collar farms outside of nearly all cities constitutes a major problem in land-use readjustment. Quite obviously here is a situation in which those oriented to the rural problem and those concerned with the urban aspects should combine if we are to gain the fullest measure of understanding and arrive at the most sensible policies and actions. Interest in suburban and outlying areas is heightened, not only because the major portion of our rapidly increasing population is likely to locate there, but also because these areas are much more amenable to planning and economic development than are the already developed central cities.

THE POPULATION SPECTER: RAPIDLY DECLINING DEATH RATE IN DENSELY POPULATED COUNTRIES

THE AMAZING DECLINE OF MORTALITY IN UNDERDEVELOPED AREAS

By KINGSLEY DAVIS
University of California

Only a short time ago the fundamental cause of declining death rates was considered to be economic development. The history of the West pointed to a direct influence of economic change on health; namely, the better diets arising from the gains in agriculture, transportation, and commerce during the eighteenth and nineteenth centuries. In addition, there were indirect influences brought by the general rise in real income per capita, to which the revolution in methods of manufacture contributed substantially. This rise in real income made possible the growth of public sanitation, medical science, and more healthful living conditions. "It is no disparagement of medical science and practice," says Thompson, "to recognize that the great decline in the death rate that has taken place during the last two centuries in the West is due, basically, to improvement in production and economic conditions."¹

This view, so long as it is an interpretation of Western history, seems essentially correct. It is perhaps correct in any long view. But when it is applied to contemporary underdeveloped areas, it is wrong; for the truth is that these areas do not need to become economically developed to reduce their death rates drastically. The failure to realize this fact has led to erroneous prediction. In 1931, for example, Bowen predicted that "the rate of proliferation of these [backward] peoples will fall off sharply." (*Op. cit.*, page 213; also, page 221.) Nearly all forecasts of the future population of underdeveloped areas—forecasts made in the thirties and forties—have proved to be too low, mainly because the trend of mortality was not foreseen. In an interesting account of the fight against tropical diseases in various parts of the British Empire, an account published in 1949, Stephen Taylor and Phyllis Gadsden reiterate that a rise in the general standard of living is necessary if public health work is to accomplish much (*Shadows in the Sun*, Geo. G. Harrap, 1949).

The view that declining death rates in underdeveloped areas depend on general economic progress in those areas arises in part from a care-

¹ Warren S. Thompson, *Population Problems* (McGraw-Hill, 4th ed., 1953), p. 77. This author provides, pp. 77-82, a convincing argument for this point of view. A similar position, less fully presented, was taken by Ezra Bowen, *An Hypothesis of Population Growth* (Columbia University Press, 1931), especially p. 201; and by Burnham N. Dell and George F. Luthringer, *Population, Resources and Trade* (Little, Brown, 1938), p. 62.

less application of principles taken from Western history. It also perhaps derives from the grip which Malthus' "means of subsistence" has had on thought about population. In the last analysis, Malthus tended to reduce all positive checks on population growth to lack of means of subsistence. He paid little attention to disease as a cause of mortality and certainly very little attention to disease as a factor independent of lack of subsistence.² If all causes of death were a function of the means of subsistence, then obviously a reduction in mortality would depend directly on economic development; but such is not the case. The failure to give adequate attention to causes of death has led, at least in population theory, to a rather sterile overemphasis on the matter of food supply.

Still another reason for economic determinism with respect to mortality trends has been the underestimation of the role of cultural diffusion across international borders. Often the effect of foreign influence on the population of a particular country has been thought of in terms of international trade. Although the importance of such trade is undeniable, it nevertheless remains true that scientific communication and medical co-operation among nations have played a large role in the reduction of mortality especially in recent times. Such communication and co-operation do not depend upon a rise in the level of living or in international trade of the country benefiting from them. It depends, rather, on the economic means of the more advanced countries which offer this kind of help.

Finally, there has been a tendency to overestimate the costs and difficulties of public health programs in underdeveloped areas. Since medical services are costly in advanced countries, especially on the therapeutic side, it has been assumed that they will necessarily be too dear for underdeveloped economies. But recent history has shown that with ingenuity and newer developments in medical technology, the practice of preventive and curative medicine on a mass basis can be carried out at relatively low per capita cost.

In any case, expert opinion failed to foresee the recent trend in the death rate in underdeveloped areas. This trend has been revolutionary, and it has occurred without commensurate economic development.

The Rapid Decline of Mortality

The rapidity with which the death rate has declined in most of the underdeveloped areas, including many areas with a high ratio of popu-

² E. F. Penrose, *Population Theories and Their Application* (Stanford: Food Research Institute, 1934), pp. 17-19, 36-43, has analyzed the defectiveness of Malthusian reasoning in this regard. More recently Marston Bates, *The Prevalence of People* (Scribner's, 1955), pp. 68 ff., has pointed out that few species of animals or insects live up to the means of subsistence. Mostly, he says, they are killed off by other animals or insects.

lation to resources, has been unprecedented. It has never been matched at any time in the now advanced countries. The exact trend is difficult to measure in the absence of good statistics, but the evidence is sufficiently abundant and accurate to establish beyond a doubt the general decline.

The best known case is that of Ceylon. There the crude death rate fell by 34 per cent in one year (from 1946 to 1947)! This was no fluke, because the death rate continued to fall. In 1945 the rate was 22.0 per 1,000 population, which was about normal for the country, because during the previous fourteen years it had averaged 22.2. After 1946 the mortality fell precipitously until in 1954 it was down to 10.4 per 1,000, a reduction of 53 per cent in nine years. The United States has no recorded death rate as high as 22.0 during the period of registration since 1900; the highest recorded rate is for 1900, when it was 17.2 per 1,000. Massachusetts had a recorded rate of 21.7 in 1875, but the subsequent decline was exceedingly slow compared to what has happened recently in Ceylon.

The case of Ceylon is interesting, not only because of the rapid drop in mortality, but because the island probably has the best statistics in South Asia. We know the causes involved, as we shall see presently. But the essential point is that this case is not at all an isolated one, for there are other instances of spectacular declines in mortality. During the 1940-50 decade the death rate dropped in Puerto Rico by 46 per cent; in Formosa, by 43 per cent; in Jamaica, by 23 per cent. In order to avoid the effect of spectacular cases, I have taken eighteen underdeveloped areas, chosen not because they had unusual declines in mortality but because they were representative of different areas and had fairly constant boundaries and a relatively continuous series of registered death statistics.² When the decline in the death rate from one year to a year five years later was averaged for these eighteen countries, the following results were found:

YEARS COMPARED	PERCENTAGE DECLINE IN CRUDE DEATH RATE
1935 with 1940	8.3
1940 " 1945	5.6
1945 " 1950	24.2
1950 " latest date*	14.0

² The countries included were as follows: Barbados, Costa Rica, Ceylon, Cyprus, Egypt, El Salvador, Fiji Islands, Jamaica, Malaya, Mauritius, Mexico, Panama, Philippines, Puerto Rico, Surinam, Taiwan, Thailand, Trinidad-Tobago.

* In nine cases the latest date was 1954; in six it was 1953; in two it was 1952; and in one it was 1951. In cases where 1954 data were lacking, the percentage decline was raised by assuming that the same rate of change would hold for five years. This was done in order to make the final period comparable with the previous three.

Since 1935, despite depression and war, the drop in mortality has apparently been averaging about 13 per cent for each half decade. Undoubtedly, these areas had long had declining death rates prior to 1935, but the pace of change seems to have accelerated after that date, and the acceleration since 1945, when World War II ended, has been little short of remarkable, as the average decline of 24 per cent between 1945 and 1950 shows.

It seems highly unlikely that these sharp declines in mortality in the eighteen countries chosen are a result of bad statistics. The statistics are certainly bad on the whole, and one has real hesitation about including data from such places as the Philippines, Egypt, and Thailand. But in many of the areas chosen the data are relatively good, and though there may have been some disorganization in vital statistics associated with the depression and the war, one would think that on the whole, especially since 1945, the registration has generally improved and that the statistics would be more likely to minimize the decline than to exaggerate it.

The unprecedented character of these drops in the death rate can be seen by looking at the past history of the now advanced countries. In the United States, for example, the greatest drop in the crude death rate since 1900, taking arbitrary half-decade intervals, occurred between 1910 and 1915, the decline being 10.2 per cent. Sweden had large drops in the more distant past; for instance, the rate for 1805 was 25.3 per cent below that for 1800. But in Sweden in the eighteenth and nineteenth centuries, a sharp fall in the death rate tended to be followed immediately by a sharp rise, so that the secular trend was very slight. This is shown by the fact that from 1750 to 1950 the average loss during any four successive half decades never exceeded 6.9 per cent; and in Switzerland, from 1871 on, it did not exceed 8.6 per cent. These results should be compared to the figures just given for the eighteen underdeveloped countries where the average loss per half decade during the twenty years covered is 13 per cent. It is the persistence of the downward trend, as well as its magnitude, that impresses us in the currently underdeveloped areas.

So far we have considered single-year death rates five years apart. Let us now compare five-year averages. The average percentage declines in successive five-year death rates are given in Table 1 for our eighteen underdeveloped countries. The first thing to notice is that over a period of thirty years there was always a decline from any half decade to the next. Data on the Northwest European countries going back to 1740-44 show that there was no thirty-year period in which a decline always occurred between half decades. A second thing to note is that, over the entire thirty years, the total decline was 47 per cent.

In Northwest European countries the maximum average percentage decline over any thirty-year period since 1740-44 was that between 1890-94 and 1920-24, when the decline was 34 per cent.⁵ A third point is that, for our underdeveloped countries, the declines were not sharp in the twenties. The downward course gained momentum in the late thirties and then became a landslide in the forties and fifties. An average drop in the death rate of 20 per cent from 1945-49 to 1950-54 is staggering in view of the preceding long decline. For our Northwest European countries, the biggest decline as between any two successive half decades was 23 per cent, from 1740-44 to 1745-49, but this was followed by fifteen years of rising mortality. We can only conclude

TABLE 1
AVERAGE PERCENTAGE DECLINE OF CRUDE DEATH AS BETWEEN SPECIFIED PERIODS, IN EIGHTEEN UNDERDEVELOPED COUNTRIES

	Number of Countries*	Average Percentage Decline from Previous Period†
Half Decade Changes		
1920-24.....	—	—
1925-29.....	15	6.0
1930-34.....	16	4.6
1935-39.....	18	6.3
1940-44.....	16	8.5
1945-49.....	16	15.2
1950-54.....	18	20.1
Average.....		10.1
Thirty-Year Change		
1920-24.....	—	—
1950-54.....	15	46.9

* Eighteen countries were used, but in some cases data were missing for one or the other of the periods compared. The list of eighteen countries is given in footnote 3 in the text.

† The percentage change in average crude death rate was computed for each country. Then the percentages were added and divided by the number of countries involved in each comparison.

that the Northwest European countries never experienced such large persistent declines in mortality as the underdeveloped countries have shown recently. (Mention should be made of the fact that Japan, which is also a latecomer to the scene of declining mortality, showed between 1920-24 and 1950-54 a drop of 59 per cent in her crude death rate.)

Of course, we have been dealing with crude death rates. They are the only index of mortality readily available for a number of backward countries and are more abundantly available up to date. The crude rates, however, should not be misconstrued. In the first place, since deaths are underregistered in most preindustrial areas, the actual rates

⁵ The countries in our list were Denmark, Finland, Norway, and Sweden up to 1830-39. In 1840-49, England and Wales were added; in 1850-59, Netherlands was added; and in 1870-79, Switzerland was added.

are not necessarily to be taken at face value. They have been used here merely to represent trends, and they are as likely to minimize the trends as to exaggerate them. In the second place, the crude rate, as is well known, reflects the age structure as well as actual mortality. In the case of our underdeveloped countries, the period dealt with is so short and fertility has remained so constant that the age structure has not had much chance to become changed. Consequently, the comparison of the crude rates of one period with those of another, in the case of the underdeveloped countries, is not vitiated by changes in the age structure. In the case of the industrial countries, crude rates may safely be compared as between one time and another, provided the two periods are not widely separated; but one should not compare, for example, the crude rate of Sweden in 1870 with the rate in 1940, because the age structure of the Swedish population was profoundly modified by the latter date. Similarly, one cannot compare the crude rates of industrial and preindustrial countries today. The industrial nations have much older populations, whereas the nonindustrial countries, especially those which have recently lowered their mortality sharply and have maintained a high fertility, have extremely young populations. It follows that the same age-specific death rates will yield a much higher crude death rate in the industrial population than in the other, and the difference tends to become greater as the force of mortality is reduced. Thus the fact that some underdeveloped areas now have crude rates as low or lower than the advanced Western peoples does not mean that their mortality is actually similar. (See the discussion of death rates in relation to age structure in United Nations, *Demographic Yearbook*, 1951, pages 9-12.) For instance, we have compared, in Table 2, the crude death rates in certain industrial countries with those in four underdeveloped countries where deaths are well registered. It can be seen that though the crude death rates of the underdeveloped areas are as low those of the urban-industrial countries, those areas nevertheless have a shorter average length of life.

George J. Stolz recently analyzed the mortality trends in advanced and backward countries by means of life tables. ("A Century of International Mortality Trends: I," *Population Studies*, July, 1955, pages 24-55.) Since very few nonindustrial countries have a series of reliable life tables covering different periods, his evidence was necessarily scanty. Nevertheless, his conclusions definitely substantiate those reached here. He points out that in Eastern and Southern Europe the long-term gains in average length of life, leaving aside periods of war, have been "much more rapid" than in Northwestern Europe at a comparable stage of development. Furthermore, he finds that since 1940 survival rates have increased in the countries of Latin America,

Asia, and Africa at such a rate as to narrow substantially the gap between them and the countries of Northwest European culture. He says, in fact: "There are mounting signs that the middle of this century has marked a revolutionary turning point in the life chances of the world's impoverished nations." (*Op. cit.*, page 47.)

The Causes of the Amazing Decline

The decline of mortality in the underdeveloped areas has not been equally great in all areas. It has been less in India and Egypt than in Ceylon; it has probably been less in China and Indonesia than in

TABLE 2
COMPARISONS BASED ON CRUDE DEATH RATES AND ON AVERAGE LENGTH OF LIFE

	CRUDE DEATH RATE		AVERAGE YEARS LIVED AFTER BIRTH (MALES)	
	Date	Rate	Dates	Number
Underdeveloped Countries				
Trinidad and Tobago.....	1954	9.8	1950-52	56.3
Ceylon.....	1954	10.4	1952	57.6
Costa Rica.....	1954	10.6	1949-51	55.7*
Jamaica.....	1953	10.4	1945-47	51.2
Urban-Industrial Countries				
United States.....	1954	9.2	1951	65.9
United Kingdom.....	1954	11.4	1952	67.1
France.....	1954	12.0	1950-51	63.6
Sweden.....	1954	9.6	1946-50	69.0

* Males and females.

Malaya and Mexico. But significant declines have occurred nearly everywhere, and in many regions their speed has been startling. Let us now summarize what seem to be the main factors.

The main cause of the spectacular decline of mortality in Ceylon is well known. It was the use of D.D.T. as a residual spray in the control of malaria. For centuries this disease was the major cause of death and illness on the island. In 1938, the spleen rate was 21.2 per cent among school children. During the decade 1933-42, the number of deaths specifically reported as due to malaria averaged 1,736 per million inhabitants.⁶ But it is known that this was only a fraction of the actual death rate due to this disease, because many malaria deaths were reported as "pyrexia." Furthermore, the weakening effect of malarial infection causes individuals to succumb more easily to other diseases. Doctors on the scene in Ceylon estimate that 100,000 people died from malaria during the months of the great malarial epidemic in 1934-35. (Taylor

⁶ H. Cullumbine, *An Analysis of the Vital Statistics of Ceylon* (a volume of the *Ceylon Journal of Medical Science*, December, 1950), pp. 134-135.

and Gadsden, *op. cit.*, page 53.) This would be a rate of approximately 20,000 per million per year, and would account for nearly half the total deaths on the island during that time. Over many years the disease had been fought by the usual antilarval methods: sluicing of streams, oiling of streams and ponds, training of rivers, etc. Pyrethrum sprays had also been used to kill adult mosquitoes. These measures had some slight effect, but the real control of malaria did not come until 1946 when, with the co-operation of the World Health Organization, residual spraying of D.D.T. "in all the areas where malaria was endemic was commenced." (Cullumbine, *op. cit.*, page 133.) By 1949, this measure had reduced the reported malaria morbidity rate by 77.5 per cent and the mortality rate by 82.5 per cent. The spleen rate of school children had been reduced by 75.5 per cent by 1948 (*ibid.*, pages 134-135). Interestingly, the death rate from other causes also declined sharply. Taking the 1948 rate as a percentage of the average annual rate for 1944-46, we find the following percentage reductions: dysentery, 65.4; influenza and rata, 43.3; pneumonia, 21.4; diarrhoea and enteritis, ages 0-2, 36.3; puerperal causes (maternal mortality), 46.1.⁷ A part of these sharp reductions was perhaps due to the fact that D.D.T. killed other insects than mosquitoes (Cullumbine, *op. cit.*, page 137), but a good part of it was also due to the fact that malarial infection leads to general debility which makes people susceptible to other diseases. The control of malaria instituted in 1946 therefore had a much greater effect on the general death rate than the reduction of malaria deaths alone would have had.

The interesting thing about the remarkable control of malaria in Ceylon is that, compared to the older methods of dealing with this disease, it was far less costly than the older and less efficient methods: "In 1937-38 the cost of the Medical Services [on the island] represented 10.5 per cent of the total Government expenditure; in 1949-50, the cost is 9.3 per cent of the total." Although governmental expenditure has risen during the period, the cost of all medical services combined in 1949-50 was only Rs. 10 per head of the population per year (Cullumbine, *op. cit.*, page 256). Since some of the costs of the malaria campaign were met by outside funds—those of WHO—we can see why the revolution in mortality in Ceylon could be accomplished with no great step in economic development on the island.

Malaria has been characterized as "the world's most potent single cause of sickness, invalidism, and death." (Taylor and Gadsden, *op. cit.*, page 43.) What was accomplished in Ceylon can be and is being

⁷ Computed from data in *Report on Vital Statistics for the Year 1948* (Colombo: Ceylon Government Press, 1949), pp. 29-33. In the case of maternal mortality, the percentage reduction in 1948 was computed against a 1938-48 average rather than 1944-46.

accomplished in many other underdeveloped areas. In Greece, for example, the introduction of D.D.T. enormously reduced the incidence of malaria—from one or two million to one-twentieth of a million cases annually. (Leland G. Allbaugh, *Crete: A Case Study of an Underdeveloped Area*, Princeton University Press, 1953, page 146.) Similar control measures are successfully being employed in malarial parts of India. (D. K. Viswanathan, *Malaria and Its Control in Bombay State*, 1950.) The cost of this work is insignificant compared to the results obtained. In Bombay Province the cost of protecting a million inhabitants was estimated to be 3 rupees (roughly 90 cents) per house per year, each house containing on an average five persons (*ibid.*, page 94). In countries where high wages and prices prevail, the cost will be higher—about \$6.00 per house per year in Venezuela. (World Health Organization, Technical Report No. 46, *Third Report of Expert Committee on Insecticides*, 1952, page 36.) But the essential thing to note is that the costs are small on a per capita basis, and they can frequently be borne in part by the more advanced countries through international agencies.

Modern science (developed mainly by the advanced countries and often applied in an underdeveloped region by their experts and with their funds) is being used often now to control some widespread disease on a mass basis and at a low cost. This has been done in the past with smallpox, cholera, plague, kalaazar, diphtheria, etc. (See Kingsley Davis, *Population of India and Pakistan*, Princeton University Press, 1951, pages 45-51.) It is being done now on a bigger and wider scale because of the discovery of the sulfonamides and antibiotics as well as new insecticides and new immunization sera. For example, successful mass control of trachoma is believed possible by the application of aureomycin or terramycin 1 per cent ointment four times daily without interruption for two months (WHO, Expert Committee on Trachoma, *First Report*, Technical Report No. 59, 1952, page 5). It has been demonstrated by a campaign in Bosnia, Yugoslavia, that endemic syphilis can be wiped out by the use of penicillin. In two years the campaign, sponsored by WHO and UNICEF, eliminated the disease as a public-health problem in areas with approximately half a million people. (WHO, Technical Report No. 63, 1953, page 12.) Similar programs on other treponemal diseases such as yaws and bejel have been successfully prosecuted under WHO and UNICEF auspices in Haiti, Indonesia, Iraq, the Philippines, and Thailand. The average cost was something like 41 cents per person examined and \$3.30 per person treated (*Chronicle of World Health Organization*, February-March, 1954, special issue on "Treponematoses: A World Problem," page 63). It is believed that in the future the reduction in the price of penicillin and the improvement of operational procedures will lower the cost to

10 cents per person examined and \$1.00 per person treated (*ibid.*, page 65).

In general, then, it seems clear that the great reduction of mortality in underdeveloped areas since 1940 has been brought about mainly by the discovery of new methods of disease treatment applicable at reasonable cost, by the diffusion of these new methods from the advanced countries to the unadvanced through international organizations and scientific communication, by international financial help furnished through international organizations and governments and private foundations, and by the use of experts and medical personnel furnished primarily by the industrial countries. The reduction could be rapid, because it did not depend on general economic development or social modernization in the underdeveloped areas. It did not depend on training local medical personnel or local research or local prosperity. It was an example of a rapid cultural diffusion of death-control techniques which did not depend on the diffusion of other cultural elements or basic changes in the institutions and customs of the people affected. Though in the literature on public health there is still great lip service paid to the necessity of general economic improvement and community welfare in the control of disease, the truth is that many scourges can be stamped out with none of this, just as diseases in cattle can be eliminated.

The Demographic Consequences of Declining Mortality

The consequences of rapidly declining mortality in underdeveloped regions can be understood only in conjunction with what is happening to fertility. In this regard, two points seem clear: First, the drop in the death rate has tended to go much farther without a significant decline in the birth rate than was the case in the West. Second, the traditional birth rates in most underdeveloped areas appear to be, and to have been, higher than they ever were in Northwestern Europe.

The first point appears clear from available data. Stolnitz has shown for eleven Western countries the dates when the sharpest increases in life expectancy were made (*op. cit.*, page 32). In eight out of the eleven, the sharpest rise in life expectancy at birth for males was after 1915; and in none did the sharpest rise occur wholly before 1900. (The results are essentially the same for life expectancy at age 0 for females.) An analysis of crude death rates reveals much the same thing. In the case of Sweden, for example, the average percentage decline in the mean death rate as between successive decades was as follows: 1740-99, 3.7; 1800-1849, 3.1; 1850-99, 4.3; 1900-1949, 7.7. In other words, the most rapid decline in mortality in Western countries oc-

curred in the twentieth century. It is known that the birth rate had started its downward course long before this. In Sweden, for example, the crude birth rate definitely turned down around 1860, and more refined analysis suggests that there was some reduction beginning as early as 1801. (See N. B. Ryder, "The Influence of Declining Mortality on Swedish Reproduction," in Milbank Memorial Fund, *Current Research in Human Fertility*, 1955, especially pages 71-72.) By the time the most rapid descent of the death rate occurred, the birth rate was already greatly reduced. In Norway the crude birth rate had dropped to the low twenties, and in Sweden and Switzerland it had fallen to less than twenty.

But the preindustrial birth rate in Northwestern Europe seems never to have been so high in the first place as that of Asia, North Africa, and much of Latin America today. Birth rates of 40 to 60 per 1,000 population are still found in many of the latter areas, whereas in Denmark the highest birth rate recorded in the eighteenth century was 33.6 in 1780; the highest in Sweden in that century was 38.7 in 1751, and the highest in Norway was 37.8 in 1756. (For the eighteenth-century rates, see H. Gille, "The Demographic History of the Northern European Countries in the Eighteenth Century," *Population Studies*, June, 1949, page 63.) In other words, "almost all the underdeveloped areas now have fertility rates well above the corresponding Western European rates before decline set in about 1880-1890." (Norman S. Buchanan and Howard S. Ellis, *Approaches to Economic Development*, Twentieth Century Fund, 1955, page 107.)

Since the death rate in underdeveloped areas is falling precipitously while the birth rate, already extremely high to begin with, is either not falling at all or is doing so very slowly, the rate of natural increase is much faster in these regions than it ever was in the past in the now urban-industrial areas. The extremity of the natural increase can best be grasped by comparing it with what happened in the now industrial countries, as in Table 4. Clearly, the excess of births over deaths in most of our underdeveloped countries has been in recent years four to ten times what it was in Northwestern Europe prior to 1800. It has even been two to three times what it was in Northwestern Europe during the heyday of population growth in the latter region, 1850-99. We cannot fail to conclude, then, that neither preindustrial Europe nor industrial Europe ever had the rate of natural increase that the preindustrial countries of the world today are showing.

In many of the densely settled underdeveloped countries, indeed, the rate of natural increase is approaching or has achieved something like 30 per 1,000 per year. Thus in 1954 or the latest year available, seven-

TABLE 4
NATURAL INCREASE FOR DIFFERENT PERIODS, DEVELOPED AND
UNDERDEVELOPED COUNTRIES

	Average Natural Increase per 1,000 per Year					
	1735-99	1800-49	1850-99	1900-49	1940-49	1950-54†
Industrial Countries						
England and Wales.....	—	10.2*	12.7	6.5		
Denmark.....	2.8	8.5	12.2	10.9		
Norway.....	6.6	9.3	14.0	9.0		
Sweden.....	5.6	8.1	11.5	6.9		
Switzerland.....	—	—	7.9†	7.0		
Average.....	5.0	9.0	11.7	8.1		
Underdeveloped Countries						
Barbados.....					14.7	18.6
Ceylon.....					19.9	27.8
Costa Rica.....					27.6	37.3
Cyprus.....					19.6	20.2
Egypt.....					16.1	26.0
El Salvador.....					25.0	33.2
Fiji.....					27.5	29.6
Jamaica.....					17.4	22.1
Malaya.....					22.6	29.6
Mauritius.....					12.3	33.0
Mexico.....					24.6	28.7
Panama.....					24.9	26.2
Puerto Rico.....					26.0	27.6
Surinam.....					20.6	27.0
Taiwan.....					25.0	35.0
Thailand.....					14.9	18.9
Trinidad and Tobago.....					22.7	26.6
Average.....					21.3	27.5

SOURCES: For 1940 to 1954, UN *Demographic Yearbook*, 1953 and 1954. For earlier years statistical yearbooks of various countries and H. Gille, "Demographic History of the Northern European Countries in the Eighteenth Century," *Population Studies*, June, 1949.

* For 1841-50 only.

† For 1871-99 only.

‡ For 1954 or the latest year available. See footnote 8 in text.

teen underdeveloped countries had an average natural increase of 27.5 per 1,000.⁸ These countries were chosen, it must be remembered, not because they showed high growth rates, but because, among the underdeveloped nations, they tended to have better than average birth and death statistics and represented different regions. Their statistics are far from perfect; in many cases the rates of natural increase are probably in error by substantial margins. But there is no reason to think that on the whole the births are any better registered than the deaths. The contrary may be true, which would mean that the rates given would be underestimates of natural increase. Furthermore, the evidence is

⁸ The list is the same as that previously used, except that the Philippines was omitted because of gross defectiveness in birth registration. Of the seventeen countries included, data were available for 1954 in nine cases; for 1953 in five cases; for 1952 in two cases; and for 1951 in one case.

overwhelming: all of these countries report extremely high rates of natural increase.

To appreciate the significance of these rates of natural increase, one should remember that a growth of 30 per 1,000 per year will double the population in twenty-three years and quadruple it in forty-six years. The United States, often thought to have established a record in population growth,⁹ never had, even in its heyday and with the help of immigration, a faster increase than many of our underdeveloped areas are showing by the sheer excess of births over deaths. Here are the figures for the United States during its greatest population boom:

AVERAGE POPULATION GROWTH
PER 1,000 PER YEAR DURING
PRIOR DECADE

1800	30.1
1810	31.0
1820	28.6
1830	28.9
1840	28.2
1850	30.6
1860	30.4

These figures include net immigration and so are higher than the natural increase alone would be. Lack of data on births and deaths prevents our knowing the rates of natural increase in the United States during our period of most rapid growth. Nevertheless, they are apparently equaled by the natural increase of many underdeveloped areas today. This circumstance would not seem strange if the underdeveloped areas were sparsely populated and had rich resources and expanding frontiers; but this is obviously not the case in places like Ceylon, Egypt, Jamaica, El Salvador, Taiwan, and a host of other backward areas. In such places the recent rapid population growth is a totally different matter from what it was in the United States from 1790 to 1860. It is not a response to seemingly unlimited economic opportunity but rather an unfortunate by-product of the importation of scientific death control. There appears to be nothing in the economic future of most underdeveloped countries to suggest that they can achieve substantially higher levels of living with populations that are tending to double every twenty-five to thirty years.

⁹ "It is likely that population growth was never more rapid in any nation than among the youthful population of this New World, from the days of colonial settlement to the time of the Civil War. . . ." (National Resources Committee, *The Problems of a Changing Population*, 1938), p. 6.

Future Possibilities

No doubt the reduction of mortality in underdeveloped areas can be carried still further, though possibly at slower rates. The life expectancy of these areas is still considerably lower than that of industrial nations. Unless, therefore, their birth rates begin to fall, the rates of natural increase may climb still higher. There is some evidence that fertility is beginning to drop (e.g., in Puerto Rico, Jamaica, Cyprus), but the signs are small as yet and are matched by slight apparent increases elsewhere (e.g., Trinidad, Fiji, Ceylon). Actually, the improvement of health, with no other changes, tends to increase reproduction.

If, as we have seen and contrary to earlier expectations, drastic reductions in mortality can be made without marked economic development in the countries concerned and without much change in the traditional birth rates, does this mean that the death rate is permanently disassociated from economic progress? Can populations continue to grow rapidly without a corresponding economic growth?

The answer is clearly no. The demographic trends of recent decades in underdeveloped areas are of necessity temporary. They result from the brief effect, the shot in the arm, which the conquest of disease by imported techniques can give. But people can die of other things than disease. They can die of starvation or from war, and they can die from a loss of the very disease controls which once saved them. As one analyst of mortality in Ceylon puts it: "What would happen, for example, if a future war prevented the importation of supplies of D.D.T.?" (Cullumbine, *op. cit.*, page 245.) Unless the demographic ledger is balanced by a change in birth rates, it may turn out that the gains in mortality in recent years will prove transitory. Economic development alone cannot be counted on to save a situation over which it has so little control and by which it is itself greatly influenced.

WORLD FOOD AND AGRICULTURAL POTENTIALITIES

By CHARLES E. KELLOGG

United States Department of Agriculture

Estimates of world agricultural potentialities can be approached from several points of view. The problem is so complex that it must be broken down into smaller units, by countries and groups of countries, and into smaller functional pieces. Yet we know that what happens in any one country depends on the questions of war or peace and of stagnation or prosperity in other countries.

We can try to limit our inquiry to the basic physical and biological potentialities for abundance. What kinds of soil do we have, what will they produce, by what means, and how much? The results of such inquiries suggest that we still have great unused soil resources.

Although we need to start with such raw data, they do not tell us very much about actual potentialities within the real world we see around us. Agricultural production results from management applied to the soil. We cannot say that it is primarily due to the one or primarily to the other. Some kinds of soil are not suited to production of food and fiber under any known system of management. Many soils are clearly suited to such use, but yields vary widely, even several fold, according to management. Then, too, a large part of our soils are essentially useless for crops as we find them in their natural state but can be made highly productive with the skillful application of capital inputs.

Above all, we must continually recall that our agricultural production, whatever it is, results from millions and millions of decisions made by individual farm families all over the world, using many hundreds of thousands of unique kinds of soil.

A few years ago, my associates and I suggested some rough estimates of potential world food production. (In *Food, Soil, and People*, UNESCO, Food and People, Ser. No. 6, 1950.) We reached the conclusion that by assuming the general use of practices already being used by good farmers occupying the various kinds of soil the acreage of cropland could be increased by a little over 50 per cent, say from $2\frac{1}{2}$ billion acres to about $3\frac{3}{4}$ or 4 billion acres. Although a part of this increase lies in the temperate or cool-temperate region, such as the United States, Canada, and northern Europe, most of it lies in the Tropics, especially in South America and Africa and in some of the larger islands. In the Peace River Country of northern Alberta alone

a large additional acreage could be developed—around 10 million acres and perhaps 20 million acres. In the United States we could find another 100 to 200 million acres. Actually we have not developed much new cropland since World War I, because it was not economic to do so.

Now we are taking around one-half million acres of good agricultural land annually for urban uses so that it is lost to agriculture in perpetuity, even though we have plenty of other land for such uses. I should like to say parenthetically that this is a serious matter from a long-run point of view. It has not seemed serious to American people—even to our agriculturists—because we are now in the midst of such a revolutionary increase in agricultural efficiency on the acres already in use.

Interpretations of the estimates made in 1946 about potential world production led me to the conclusion that food production could be increased substantially beyond requirements simply by extending to all soils in use the results now being obtained by the better farmers using the various kinds of soils. For cereals, root crops, sugar, and fats and oils the potentials far exceed the needs. More effort would be required to meet the needs for fruits and vegetables, meat, and milk. Even though these estimates were made only nine years ago, we have had phenomenal increases in the efficiency of agriculture since that time. In other words, by going through the estimating process now, we should probably get higher figures for potential production today because of the improved management now being followed by the better farmers, not only in this country, but in several other countries as well. This is to say nothing about the prospects from research results already reported but not in general use and from those not yet reported.

If instead of these assumptions we should make a calculation of crop potentials at the level of management followed by good farmers in Holland for the temperate regions and on plantations in Hawaii for the Tropics, the estimates would be far greater. I repeat that these estimates take no account of the new techniques that are coming along so rapidly. Right now, for example, one agricultural worker in the United States produces twice as much corn as one worker did only fifteen years ago.

Such estimates tell us only that we have the raw potential in our soils to supply food and fiber for a much larger world population. But these soil resources are not distributed evenly. Western Europe has little new soil to exploit; in fact, agriculture is losing some land to urban uses. Although the United Kingdom—and especially France and Ireland—could make substantial increases in yields, northern Europe as a whole cannot be expected to make great net increases. China, India, and Pakistan have relatively little new land to exploit, but yields could be

increased and especially efficiency in terms of yields per worker. It is hard even to speculate about the Soviet Union. It has great soil resources, but it also has, generally, an erratic climate. Practices could be improved enormously with more capital inputs on farms. But instead it appears that for some time capital has been drained away from agriculture to heavy industry. One has little basis for guessing the future trends.

In countries like China and India current production could be increased, certainly, but such increases may call for almost revolutionary improvements in land tenure, management skill, and the availability of agricultural supplies, especially machinery, chemicals, and power.

I should like to emphasize the relationship between agriculture and industry. In our own country we have gone from about 75 per cent of the labor force in agriculture during the first decade of the last century to about 10 per cent at the present time. And the figure will drop some more. The social consequences have been very great. Now our industry is so large that it is relatively easy for agriculture to have the steel, chemicals, and power required without curtailing other uses.

Parenthetically, I can only mention, without discussing the details, the problem of water. This is rapidly becoming a scarce resource. A great deal of discussion and legislation can be expected during the next few years about the conservation of water and its allocation among competing users.

But to return to soils: Most of our most productive soils in humid regions were not so naturally. They have been made productive by techniques developed through science and by the use of the power and materials of industry. The Corn Belt no longer has a monopoly on high corn yields. In fact, we are little concerned here in the United States any more about the natural fertility of our soils. By fertility, I mean the amount and balance of plant nutrients. We are now much more concerned with the physical condition of soils: their structure, depth, and water relations. Given light and temperature, a soil with good physical structure is so responsive to our modern methods of fertilization and water control that "inherent" or "native" fertility is becoming relatively unimportant to the skillful manager with capital at his command. We are not only getting high production from such soils, but we are getting it very efficiently.

But without industry to furnish the power and materials, without skillful managers, and without capital, many of our most productive soils would be essentially useless for agriculture at anything like current prices and current standards of living.

I am trying to say that countries like the United States and Canada could increase their agricultural production very greatly, and do it

efficiently, with only modest economic incentives. Ultimately water may become the limiting factor in large parts of our country, in the East as well as in the West.

Despite the large potentialities capable of immediate development in temperate countries, my studies lead me to believe that the greatest long-run potentials are in the Tropics—in Africa and South America, and on several of the large tropical islands. Perhaps I should say very long-run, for most tropical areas are now lacking many of the basic institutional elements that have made agriculture in Western Europe and America so prosperous: competent research and advisory services, reasonable and secure land tenure for farm families, basic education for the rural population, capital, and an industry to serve agriculture.

We must also recognize the dense farm populations of such areas as southern and southeastern Asia that press on the limited soil resources with few alternative opportunities; the common lack of medical facilities; the social customs among people that hinder the adoption of many scientific principles and techniques; and the intemperance of racial and political conflicts among people in several places.

These are all very serious handicaps to optimum soil use and agricultural production because they limit the management skills that farmers practice. My own confidence that the soils in these areas have great potential abundance is based on the few bright spots where such handicaps have been at least partly overcome.

One realizes, of course, that all these handicaps need to be worked on; and they are being worked on in several countries.

Perhaps one of the greatest of the handicaps to agricultural progress is the lack of appropriate agricultural research institutes and services. Herein lies a great challenge to technical assistance of the Point Four type. Basic scientific principles can, of course, be transferred from temperate regions to the Tropics. So can many engineering techniques. But not the field techniques of soil management. The soils and other growing conditions in the Tropics are too different from those of temperate areas. In fact, a major responsibility of experienced tropical agriculturists is to protect the soils of the Tropics from the common tillage and cropping practices used by the best farmers of the United States!

Let me take one example from the humid Tropics: Unlike temperate regions, the most productive soils are found under the forest. Native farmers clear the forest and grow their crops for a short time. If cropping is continued, the soil soon becomes exhausted of plant nutrients and the savanna grasses invade the fields; then the natives abandon them and clear new fields from the forest. Commonly, the season is dry for a few weeks each year; the savanna burns; and the forest never

returns. Millions of acres of such anthropic savanna exist in the Tropics. With fire control and return of the forest, enormous areas would again have productive soils.

Some form of this system of shifting cultivation goes on in the Tropics under many names. Where cropping is carried on to the point of near soil exhaustion and invasion of persistent savanna, shifting cultivation is wasteful and highly inefficient. But it does not need to be so wasteful. By stopping the cultivation and returning the soils to forest before exhaustion, productivity may be restored for another crop. Such restoration forest is called "forest fallow" or, more commonly, the "bush fallow." Thus shifting cultivation may be wasteful or not, depending on how it is employed.

Empirical field research in the Belgian Congo has shown that a regular system may be used to maintain soils at fairly good levels of productivity by laying out the village lands into corridors. The number of corridors depends upon the years necessary for the bush fallow to restore the soil after an optimum sequence of mixed crops. Thus maize, upland rice, bananas, and cassava may be grown in a mixed culture; the crops are harvested one after another over a period of three or four years; and the soil is returned for twelve years under the bush fallow. On such a soil sixteen corridors would be needed, with one being cleared each year and one returning to forest each year.

The forest is used in another way to maintain soil productivity: Many food crops and such industrial crops as cacao and coffee are grown amidst the trees with only partial clearing of the forest.

Systems involving the bush fallow require a lot of land and a lot of labor. If we knew exactly what the bush fallow does to the soil, perhaps we could find ways to improve it or even, on some tropical soils at least, to substitute other combinations of practices that would be more efficient. We know that the trees bring up nutrients from the lower soil and concentrate them in the surface. We know that a balance of nutrients in the soil is critical, including the trace nutrients used by both plants and animals. We know that shade is important. We suspect that water relationships are important. The relative significance of these factors varies with the local kind of soil. The plain fact is that we do not know exactly what the bush fallow does. For my own part, I should rather know the answer to this question than that of any other unanswered question in soil science. The results affect millions of acres and millions of people.

On a large part of the soils where the bush fallow system is used, clean clearing, plowing, and seeding to a single crop, as farmers do in the Middle West now, lead to serious soil depletion and commonly to erosion down to a sterile lateritic hardpan.

I do not mean to imply that all soils in the Tropics need to have the bush fallow. A few productive alluvial soils, which receive fresh fine rock material from annual flooding, may be used for rice, cotton, sugar cane, and other crops with only modest fertilization. But these are small areas. Relatively young soils from basic volcanic rocks and those that are occasionally refreshed by basic volcanic ash can be handled somewhat the way soils are handled here in the United States, except that most of them occur on moderate to very steep slopes.

Rubber or oil palm may be planted in the partially cleared forest and the "nursery" trees gradually removed as the rubber trees or oil palms become larger. Or a forest may be cut and planted to bananas with the bananas shading the young trees or palm seedlings and the soil under them.

There are other exceptions. In fact it is very hard to generalize about tropical soils. There are more locally contrasting kinds of soil within the Tropics than in all the rest of the world.

But the point I wish to emphasize is that for many tropical soils we now have an uneasy choice among some system of bush fallow, mixed forest and crop plantings, or ordinary rotation farming with exhaustion of the soil and the great risk of its complete destruction.

No research is more badly needed than that to establish the precise actions of the bush fallow. With such knowledge I am confident that we could improve the fallow or perhaps substitute combinations of fertilization and other practices—practices that can be invented only within the Tropics.

This problem of the bush fallow is only one among a great many. With tropical soils we have an enormous problem of phosphorus deficiency and fixation. Many tropical soils are underlain with laterite that hardens to a resistant rock upon exposure. Important unknown processes maintain the nitrogen supply in many tropical soils. If we knew the principles involved, we would have a great advantage. And, of course, there are special problems of crop protection against diseases and insects. Only a little has been done to improve efficiency through plant breeding.

On this general point of the need for research, I want to quote from Sir E. John Russell, who has stated the matter clearly in his new and useful book on *World Population and Food Supplies* (Allen and Unwin, 1954). He writes:

The problem in Africa is to convert the peasant agriculture into a better system capable of giving increasing output as the need increases. Difficult technical and scientific problems are involved which are not yet solved, and which require for their solution highly skilled investigators left to work in peace and security. They cannot be adequately dealt with by visiting experts remaining for a few months only, but with no permanent interest in the country; nor could they be solved by people who have merely learned something at a college and got a degree. Scientific acumen of a high order is needed; it

cannot be imparted but only developed in those in whom it is inborn. Such men can only be attracted, not produced.

The longer such research is delayed, the longer it will take to get tropical agriculture going on an efficient basis.

Industrial development needs to go along with agricultural development, especially in crowded countries where farms can be efficient only if they are larger and tenure is more stable. In such countries both food crops and those industrial crops that local industries can use need emphasis.

We must continue to recall that an efficient agriculture requires power, chemicals, machinery, transport, and medical facilities. Agriculture must be enormously efficient to support such services by itself. With a few exceptions, such as Hawaii and Queensland, efficient agriculture in the world shares the costs for social services with mining or other pursuits, and especially with industry. Our Middle West is an excellent example. Here farmers have access to abundant facilities the costs of which are widely shared with other producers.

Farm products for export will be needed in many countries to balance the economy; but only rarely can export crops balance it alone when all the chemicals, machinery, and other requirements must be imported; and even then only when the country has a customs union with an industrial country.

In some underdeveloped countries, two related difficulties stand in the way of emphasizing both food crops and industrial crops for export: a native suspicion of "estates" carried over from older, less gentle colonial days and the uncertainty of world markets. The first of these can be illustrated by the Gold Coast, where at least a few estates would be invaluable for the necessary large-scale experimentation with the present main crop, cacao, and potential new crops, such as paddy rice, cotton, and sugar cane.

The second problem can be illustrated with rubber. Malaya is worried about the rubber market now and attempts are being made to try cacao and other crops. Few countries want to increase rubber because nobody seems to know the future of synthetic rubber. In fact, natural rubber may be in short supply within a few years. Similar uncertainties can be raised about sisal, abaca, and oil palm. For years sugar beets in the temperate region have competed strongly with the sugar cane of the Tropics.

Perhaps I have taken too much of my time for the humid Tropics. Other examples could have been chosen from the dry Tropics, from the Arctic, or from the great deserts—examples of soil management problems having a special and different significance than they have in the advanced countries of temperate regions.

In summary, the estimates of the available soils for agricultural use and of the production possible from those soils are considerably higher than the prospective population of this century. Difficult as are the technical problems, especially in the Tropics, the institutional and economic problems standing in the way of farmers realizing this potential abundance are even more difficult.

World agricultural production has increased some 25 per cent in the last ten years. This is significant. But taking the world as a whole, the total calories per capita decreased in relation to the years just before World War II, and the quality of many diets decreased. Yet last year, for the first time since the war, there was a world-wide increase in food production per capita. This fact can be misleading, since total supplies were unevenly distributed. Improvements in advanced countries were offset by reductions in some of the underdeveloped areas with large population increases. If all announced plans for both agricultural and industrial developments are carried out and reasonably good trade continues, the situation will improve. Thus it can be said that a cautious immediate optimistic view is possible. Yet we must remind ourselves that these trends could stop or even be reversed. Any let up in the planned efforts, widespread poor weather for crops, or reduced international movement of capital, of production materials, or of food, would prevent significant improvement in food supplies in those countries having expanding populations and low current food production.

SOME COMMENTS ON NONAGRICULTURAL POSSIBILITIES FOR RAISING THE LEVELS OF LIVING OF UNDERDEVELOPED NATIONS

By REUBEN E. SLESINGER
University of Pittsburgh

The crux of the problem to which this paper addresses itself is found in the situation that exists in a number of underdeveloped countries in which the outlook for any appreciable gains in the respective living standards for the average individual appears gloomy, especially when viewed from the perspective of the numbers in the population as related to the resources available to sustain them. The problem is this: How to raise the three-fourths of the world that now exists on a low level of living to the plane of the other fourth? Industrialization is suggested as a first approximation. Then this question arises: Will these areas be able to expand their production at a rate as fast or faster than the increase in their population? If not, then the net results of economic development in a number of these countries will be a greater mass of people enjoying few gains by way of improved levels of living. Discontent and dissatisfaction are normal outgrowths of such a condition, and dissident elements may seize upon the disparity in levels of living to stir up conditions that lead to political instability, both domestically and externally.

Since the beginning of the current century the population of the world has been increasing at a rapid rate. But if peace and prosperity, internal and international stability, and rising world standards of living are to be achieved, there must be a proper adjustment between the number of people in a region and the resources to sustain them.

Many of the underdeveloped nations of the world today are experiencing a process not unlike that which the more fully developed countries underwent after the Industrial Revolution. Then it took some of the nations a century or more to show evidences of an adjustment to the problems arising out of population imbalance. By 1870, for example, France showed a net population increase of approximately zero, its birth and death rates being about equal. However, the experience of Europe in coping with the problems of population imbalance during the nineteenth century cannot be applied completely to the underdeveloped nations of today. To begin with, there are not as many outlets for surplus populations today. Also, the population density is greater in most underdeveloped nations than it was in Europe

during the late eighteenth and most of the nineteenth centuries. Then, too, the current death rate is considerably lower than at any other time.

The current problem is complicated further by the fact that many of the underdeveloped nations are showing death rates of the industrialized nations (low and declining) but birth rates of underdeveloped regions (stable or very slight decline). This drag means a steady pressure of more people wanting jobs, willing to accept low wages, and being generally dissatisfied with economic conditions. The introduction of expensive capital equipment may be delayed for some time because of the abundance of cheap labor. Hence the accumulation of capital which is essential for the increase in productivity is postponed.

If the more developed parts of the world are interested in stabilizing populations in the underdeveloped sections of the world, the requirements are clear. These people must be assisted in their advancement towards mechanization of industry, expansion of commerce, development of trade, and improvement of agriculture. This paper will concentrate on an analysis and review of the potentials offered for raising levels of living through nonagricultural programs adopted by various underdeveloped nations in their attempt to provide employment, buying power, and increased national product. Attention is focused on the necessity for expanding industry and trade and on the influence of mechanization, with its accompanying urbanization.

For the great masses of people inhabiting underdeveloped areas, general poverty does not appear to have been reduced substantially in recent years. In fact, in wide areas it may possibly have become aggravated as a result of the exodus of farm workers from the rural to the urban areas following the introduction of mechanized farming. Today a number of the underdeveloped nations are finding themselves engulfed in a change from the rather self-sufficient rural economics of a simple agrarian society to the complexities of an urban economy. As always, such a transition gives rise to a number of economic problems among the transitional groups. Not only are the resources wanting or underdeveloped in many of these regions, but the technical know-how to develop and utilize that which is available is also deficient.

A special consequence of the rapid increase in population has been a worsening of the housing situation in a number of the underdeveloped areas. Congestion and slum conditions are becoming noticeable in the cities that have increased rapidly in size during the last two decades, particularly because of displaced agricultural labor migrating to these cities.

There is a common belief that the fruits of economic development inevitably must be dissipated in population increases. This is a fallacy. If economic development is advanced rapidly in these areas, it may be

possible to increase the gross national product enough to counterbalance the rising population. If we accept the commonly cited assertion that each factory job creates anywhere from one to three additional jobs, then the introduction of industrialization holds promise for these regions. On the other hand, it would appear to be unwise economic policy to refrain from economic growth merely to restrain the increase in population that usually accompanies the early years of industrialization. The need is urgent to industrialize the backward areas and to increase their production so that they will be able to sustain their increased numbers.

An increase in population may affect the level of living in several ways: by raising it through making available greater opportunities that stem from increased numbers; by leaving it unaffected; or by lowering it. The first alternative is probable only in those areas that have an abundance of resources that await an increased population for their development or are fortunate in attracting significant amounts of foreign capital. Most of the underdeveloped nations are unable to save enough currently to maintain their capital account, let alone accumulate capital for expansion.

The history of economic development seems to bear out the following generalizations: Where resources are adequate production may increase more rapidly than population. When this occurs, the influence of rising standards and increased income generally contributes to a decline in the birth rate. Population may increase for some time because it might take as long as a century for the gap between birth and death rates to narrow.

The solution to the problem that has been confronting us clearly is through increased production as a direct result of industrialization. First it is essential that relatively accurate estimates of future population gains be made and then it is necessary that steps be taken to provide for a gross national product that will increase at least in the same ratio—preferably a more rapid one. This is the only way that a net gain in the level of living may be achieved. Whatever measures may be undertaken to help bring about a declining birth rate will make the problem of adjustment easier.

Although there is no single manner in which production may be increased, there are serious political and economic implications that attach to different techniques. In recent years, economists have devoted increasing attention to the conditions of economic development, stimulated, in no small manner, by the necessity of setting out criteria for governments engaged in programs of international economic reconstruction and development. Foremost, planners must seek ways and means of preventing any aggravation of the problems of unemployment and underemployment that may result from mechanization of production,

so that there will be no interruption in the income of workers temporarily unemployed. Progress in ameliorating unemployment can take place only where the people affected want progress.

Highly developed nations did not reach their present positions merely by wishful thinking. Success in raising the standard of living is impossible with a passive population, this in spite of otherwise adequate financial and economic resources.

Inasmuch as little is known with certainty about the development process—the initiating and sustaining causes of development, the various patterns experienced during the course of development, the institutional milieu that encourages development, and the range of cultural patterns that accompany development—there are no positively definite principles of development that an underdeveloped nation can follow in emulating a more developed country. Not all countries are capable of reaching the same levels of per capita resource use; some just do not have the resources; others lack the capacity to utilize more effectively those resources that they do have.

The International Bank for Reconstruction and Development has supplied us with some valuable case material as a result of a number of missions that have studied loan applications of various underdeveloped countries. These studies set fourth criteria which must be met by applying countries prior to the grant of a loan. In many instances they amount to an economic plan for the country in question. It is not always possible, however, to apply the same criteria in granting or refusing a loan. Specific conditions of each country are considered and special programs for economic development are outlined to meet these individual requirements. Differences in geographic, political, economic, physical, and cultural factors must be kept in mind. What may improve the level of living for one country might be inapplicable in another and vice versa.

What, then, may the underdeveloped nations that are facing these dynamic problems do so that unrest will not be the outcome of economic development? If increases in total output are to keep ahead of increases in population, the following conditions must be satisfied: relatively free emigration from overcrowded areas, relatively free markets, and external capital aid. These are not easily achieved in all countries. Considerable capital is required for industrialization. One cannot overlook, as did the Bombay plan of 1945, the capital requirements to sustain the initial dosage of capital. This plan projected an increase of some 100 per cent in India's real national income in fifteen years, but overlooked the continuing demands for capital for housing, transportation, and the like.

For a country undergoing economic development, it has been estimated that the amount of capital required per capita to bring about an

increase in the standard of living is between 3 and 5 per cent of the national product. Using 4 per cent as an average, a capital investment of 4 per cent of national product would be required to cover a 1 per cent increase in population. A simple rule is to take the expected rate of population increase and multiply it by the amount of capital required per head. This gives the percentage of gross national product that must be devoted to capital formation to sustain the same level of average employment that existed prior to the increase in population.

The magnitude of the capital investment required may be appreciated in more detail when one considers the following United Nations data on population.

Area	Percentage Rate of Population Growth 1940-50, Annual	Estimated Percentage Rate of Growth for 1950-60, Annual
Latin America.....	1.89	2.25
Africa excluding Egypt.....	1.20	1.25
Middle East including Egypt.....	1.25	1.50
South Central Asia.....	1.02	1.50
Far East excluding Japan.....	0.48	0.75

In a few countries the rate of population increase is at or near what appears to be the maximum probable rate which is an annual increase of 3.5 per cent. Hence capital requirements to sustain such a rate would run over 12 per cent of national product. Capital requirements will continue to be great in Asia and Africa as future years witness a sudden drop in death rates with little changes in birth rates.

It is unlikely that any nation can gain a substantial increase in its level of living without a shift away from simple agriculture to modernization and industrialization. The introduction of a program for the deliberate diffusion of new industries throughout small towns and rural areas, as in India, is of some help. Economic development usually has been accompanied by industrialization which results in increasing productivity for the nation. Higher productivity means more income available for spending. But as income increases, expenditures for nonfood items will increase more than in proportion. This means a reduced demand for farm labor. At the same time, improved agricultural techniques enable a reduced agricultural labor force to maintain a high or higher rate of production. Displaced farm workers flood the labor force. Some of them may find employment in industries, such as fertilizer and farm equipment plants, that service agriculture. Other opportunities include industrial labor in mines, quarries, extraction of minerals, manufacturing, shipbuilding, power, engineering, construction, marketing, and transportation.

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There is little hope, however, that the large factory will become

dominant in these areas. In fact, such an establishment is rarely found. In Asia, for example, the major portion of industrial output is produced by handicraft industries scattered in numerous households and workshops. Modern factories using power-driven equipment represent only a small fraction of total production, employment, or output. In Burma it was estimated in 1947 that 45,000 workers were employed in handicraft textiles contrasted to 7,000 in factories. Japan, in 1950, had 18 million nonagricultural workers, with only 4.6 million in factories. Similar conditions prevail in India, China, the Philippines, and most of Latin America.

Although handicraft industry provides the greater percentage of industrial employment in areas such as Asia and Latin America, its relative importance has been declining because of the increasing competition of newer factories, helped along by foreign funds. Some handicraft industries have been forced out of existence entirely and others have had to curtail their output and employment or have been able to stay in operation only by paying substandard wages. These wage rates are depressed further by the constant inflow of labor from the villages. In some cases the factories compete for raw materials, further raising the costs of the handicraft establishments. The village handicraft tanners in India, for example, are no longer able to secure the best quality hides since most of them either are exported or else are bought up by their powerful competitors at home for large-scale production. The problem of poor conditions in the smaller undertakings is accentuated during the period of transition to industrialization.

Economic development is a dynamic process. It increases the amount of resources available, creates new sources of capital investment, and adds to the material welfare of the nation by way of internal improvements such as roads, harbors, and power plants.

As already indicated, in few instances is this type of development possible without foreign assistance. One of the problems faced in extending this assistance is that of avoiding a lopsided, excessive flow of capital into one or two sectors of a nation's economy, such as into basic raw-material producing industries, at the neglect of the rest of the country. Diversified economic development is desired. This means a balanced growth and development of raw-materials producing industries, manufacturing, and agriculture. Efforts should be concentrated towards creating new industries, off the land, which will help in absorbing the unemployed and in setting up broader economic opportunities for all.

When governments or private industry embark on a development program, it is possible often to encourage related local industries. For example, an oil or a copper firm might help in establishing a local

cement plant, shoe factory, or food processing plant.¹ Just what types of industry should be encouraged for the economic development of a nation depends on the special circumstances surrounding each region. Factors to be considered include the available resources, potential markets, skills of the natives, and relative costs of production. Other issues present themselves such as the relative emphasis on consumer or producer goods, the degree of centralization, the types of business organization to be used, and the techniques of distribution.

It is quite possible that cottage or small-scale industry might be appropriate under certain circumstances. Here work is done at home and in small-scale industries located in rural areas or towns. During the transitional period, these industries may perform valuable services and even may use some modern methods of production. Cottage industry that retains the elements of antiquated, inefficient production should be discouraged lest it saddle the economy with a high cost burden. But applying advanced techniques to cottage industries may have desirable effects that emanate from the advantages of carrying industrial techniques to the places where the masses of people are found. The best example of a high level of living in an industrialized nation, but with small-scale industry flourishing, is Switzerland.

Let us now turn our attention to some of the specific activities that have been undertaken by way of industrializing underdeveloped areas, either through governmental assistance or with private capital. The United States government has extended a considerable amount of such aid, especially through its technical co-operation program. The Mutual Security Act of 1954 set forth the policy of the United States to aid the efforts of the peoples of economically underdeveloped areas by assisting them in achieving a balanced and integrated development of their economic resources and productive capacities.

In addition to programs directed at improving agriculture, health, and education, a number of other programs have been sponsored. Highway technicians were sent to Bolivia to make recommendations for that country's needs. Improved hand looms were developed for Ecuador and have been distributed to the Indian weavers who conduct a type of cottage industry. Major surveys of mineral resources and assistance in core drilling have been undertaken in the Philippines. Technical co-operation has helped stimulate the production of minerals in Brazil. Various commodities and industrial equipment were sent to

¹ See Eugene Staley, *The Future of Underdeveloped Countries* (Harper and Brothers, 1954, pp. 308-310), for illustrations of private aid to industrialization. Examples include Singer Sewing Machine Company extending aid to Ceylon to set up a shirt factory; Sears Roebuck and Company manufacturing many of its appliances abroad; the Grace Company rehabilitating a sugar mill and setting up a paper and chemical industry in Peru; 161 American enterprises investing in Japan; and private capital helping to establish steel mills in Brazil and Chile.

Jordan and Lebanon and 40 million dollars were extended in aid to Egypt to assist in development projects, particularly in transportation and water supply. Aid has been extended to the steel industry in India. In fact, India recently purchased its fourth steel mill, this one from England. India also has witnessed a sharp increase in its power output, a development of shipbuilding and manufacture of locomotives, as well as increases in coal and cloth production.

As a result of aid, Korea has increased its industrial production by about 100 per cent since 1951. Developments include cement, flat glass, and textbook printing plants. During the last ten years, Japan has undertaken a number of industrial programs. A deep-water seaport and connecting highway have been begun in Cambodia and Thailand has had its highway system improved.

Turkey and Greece have undertaken elaborate development programs. Afghanistan has begun work on a multimillion dollar irrigation and land reclamation project on the Helmand River. Handicraft textile production has made headway in Burma. In Ceylon advances have been made in developing a salt and cement industry. Other programs that have been making progress include: road building in Sarawak; a truck road in Nepal; sea and air transport, housing developments, and town planning in Singapore; improved metal finishing plants in Israel; development of oil resources in Saudi Arabia; advances in civil aviation in Syria; development of water resources in Yemen; expansion of iron ore projects in Liberia; mineral surveys in Angola; nonferrous metallurgy, road construction, and sewage projects in Belgian Congo; aluminum production on the Gold Coast; hydroelectric plants in Morocco; power, roads, telegraphy, and railways in Nigeria; encouragement to copper, chrome, cobalt, and asbestos production in Northern Rhodesia; housing projects in British Guiana; aid to the tanning industry in Haiti; and production of palm oil in Nicaragua. These illustrations may be continued almost without end as one reviews the progress of economic development during the last decade, but space will not permit any more detail.

As examples of what underdeveloped nations may do themselves to raise their levels of living the cases of Puerto Rico and Italy may be cited. For many years Puerto Rico was considered a poor and overpopulated nation. But since 1939 it has demonstrated a rate of growth and economic development without parallel in recent history. (It should be pointed out, however, that Puerto Rico was permitted to pour its excess population into the United States and had special tax advantages that encouraged the investment of American capital.)

This progress rested on two elements: the intensification of sugar production and the advance of industrialization. Since 1940, this nation

accomplished the following: expansion of its power network, addition of 225 new industries to the country, diversification of agriculture, increase in per capita income from \$122 in 1939 to \$399 in 1952 (\$212 in 1940 prices), better distribution of income, improved public health, reduced birth rate, improved education, and lesser reliance on government help for economic development. The birth rate, too, has declined from 39 per 1,000 of population in 1940 to 35.7 for the average of 1948-52. Puerto Rico demonstrates what a country may do by "pulling itself up by its own bootstraps." It typifies the usual course of development: improved agricultural practices, mechanization of agriculture, need for fewer workers on the farms, rising unemployment, migration to the cities, industrialization in the cities, reduced birth rates.

Italy's economic difficulties are to be found in its disproportion between the growth in population and its available means of support. Some two million people are more or less permanently unemployed in Italy and the normal yearly increase in population amounts to about 350,000. Because of emigration, the annual increase in the labor force comes to about 250,000. Today Italy has the Vanoni Plan—a ten-year plan for economic development, founded on an imperative increase in national income and international co-operation to supply capital.

It calls for a 5 per cent annual increase in gross national product. This corresponds with the rate of expansion attained from 1951 to 1954. For the success of the plan, industrialization, resource utilization, and mechanization of agriculture are essential. Investment is contemplated in farming, public utilities, construction, public works, and housing. It is hoped that the increased farm production necessary to sustain a rising standard of living will be produced by a reduced labor force and that the number of peasants may drop from the present 44 per cent of the population to 33. Investment needs call for an amount (4,800 billion lire) capable of giving work to 3.2 million new workers. The plan hopes to create about 4 million new jobs, thereby wiping out development unemployment, stimulating productivity, and inducing higher levels of consumer income, expenditures, and living.

The achievement of fuller and more rapid economic development is vital, not only to the economies of the underdeveloped nations, but to the entire world. As fully participating buyers and sellers in a thriving world market, the presently underdeveloped nations can further the prosperity and welfare of the more advanced countries. Although the problems hampering economic development are many, the lack of capital is outstanding. Since the great mass of the natives barely meets its daily requirements for living, there is little opportunity to save and

accumulate a capital fund. Foreign aid is necessary, not only to establish, but to integrate such elements of a prosperous economy as production, transportation, power, and communications.

During the transition period when economic development is getting under way, there will be a certain amount of technological unemployment to be reckoned with. Older workers often are unable to adapt to new techniques and cannot find alternative employment. Rapid economic development is both a significant cause of and an important cure for this unemployment.

The belief that economic development inevitably must be dissipated in population growth causes gloom and pessimism. But if these countries are able to increase their national product through economic development, such need not be the case. Applying our working formula to determine the capital requirements, however, shows that this task is not an easy one. But, with adequate development, it becomes possible for an increase in population to advance the standard of living, as a larger population presents greater economic opportunities, provided the resources are available.

THE POPULATION PROBLEM: DIMENSIONS, POTENTIALITIES, LIMITATIONS

By JOSEPH J. SPENGLER
Duke University

"A hopeful disposition is not the sole qualification to be a prophet."—WINSTON S. CHURCHILL (in Speech, April 30, 1927).

In accordance with my assignment, I shall undertake to do four things: define the population problem and the role of limitational factors; touch upon strategic courses of action available for easing their impact; distinguish the major problem areas; and indicate limitational factors operative in these areas. I shall hypothesize that world population will continue to grow for a century or more at between 1 and 1.5 per cent per year. This implies a world population of 4-5 billion by the year 2000 and 6.5-10.5 billion by the year 2050.

I. Limitational Factors and the Population Problem

The population problem of any collectivity (e.g., a nation) has its origin in imbalance between numbers, output, and desired level of consumption. It resembles in part the general economic problem—for this problem also has its origin in imbalance—that between a collectivity's aggregate of conduct-determining material wants and its capacity to satisfy these wants. But the collectivity can cut the coat of satisfiable wants to the cloth of supply through recourse to price and rationing systems that are re-enforced by a system of police and suitable institutional arrangements. The collectivity cannot, however, through use of these instruments bring the demand for population into balance with the supply of population at a level of consumption deemed satisfactory.

We may think of a collectivity as being confronted by two curves which may or may not be optimally tangent to one another. (See Figure 1 and the appendix at the close of this paper. One might, of course, use some other index than per capita income.) The one depicts the response of per capita income (or output) to increases (decreases¹) in the collectivity's population. The other joins various combinations of per capita income and population magnitudes which the collectivity

¹ It is most unlikely that, were the population of a collectivity to diminish, the response of per capita income to this diminution would retrace the very path which it pursued as population increased.

finds equally attractive; it is the relevant member of the collectivity's indifference map.² If the relevant indifference curve is tangent to the income curve at a point which coincides with the locus of actual population and actual per capita income, a population problem does not exist. If, as is usual, however, population is so great and per capita income is so low that their point of coincidence lies to the right of the point at which the indifference curve is tangent to the income curve, demographic imbalance exists. But this imbalance can rarely if ever be rectified by an enforced or voluntary diminution in numbers, since prevailing institutions and values rarely if ever conduce to a diminution of numbers. Nineteenth-century Ireland constitutes a partial exception to this statement, since it greatly reduced its population through emigration. Correction of imbalance must be sought rather through measures (e.g., capital formation, technological improvements, economic reorganization, etc.) suited to increase per capita income, population being given. Yet the effectuation of such measures tends to be made difficult when it is not prevented altogether by the magnitude of the existing population, coupled with its tendency to increase even though numbers already are pressing hard upon resources. Herein lies the population problem. It exists whenever the aggregate of wants presses beyond the aggregate supply, whether because numbers are great, as in India, or because per capita consumption is great, as in America, or because both numbers and consumption are great, as in England.

The population problem usually arises because labor is not the only economic factor of production and therefore not all output is imputable to labor. If labor were the sole factor of production and there were no economies of scale, the population problem would not manifest itself until the amount of space available per head had begun to prove inadequate. Even given economies and diseconomies of labor organization, per capita output would tend to increase until the labor force had reached a size commensurate with full realization of the net economies of labor organization; beyond this point diseconomies would outweigh economies of organization and per capita income would decline until it had descended below the level deemed desirable, given the size of the population. Not all output is imputable to labor, however. Only in the neighborhood of 80 per cent of net output is attributable to labor in its various forms, the balance being imputable to the nonhuman productive agents utilized jointly with labor. The population problem comes into being, therefore, because the stock of these agents available

² Our discussion above and in the appendix does not take account of the objections to which the concept of community indifference is subject. E.g., see R. W. Pfouts, "Some Difficulties in a Certain Concept of Community Indifference," *Metroeconomica*, 1955, pp. 16-26.

for use with labor becomes too small. (Of course, if per capita requirements exceeded what could be produced with an optimum stock of these agents, the population problem would continue to exist until per capita requirements had declined sufficiently.)

Inasmuch as embodied labor forms a part of capital (inclusive of land), the agent to which nonlabor income usually is imputed, attention will here be focused, not upon the agents used jointly with labor, but upon categories of goods, the longer run comparative nonaugmentability of which operates to decelerate the rate of growth of both per capita income and population and eventually to halt income and population growth. These categories, four in number, may be looked upon as limitational factors, or, in more accurate phrase, as species of the genus limitational factor.³ They are food, energy, other mineral and nonmineral raw materials, and water. They become limitational factors because their ultimate sources of supply are fixed in quantity, or subject to depletion.

Respecting the quantitative significance of these factors, three observations may be made. (1) While the value of the amount of them consumed has increased more rapidly than population, only that of some (minerals and mineral fuels and water) has increased more rapidly than gross national product. Such at least is the implication of American data. For in the United States, while population was doubling between 1900 and 1950 and gross national product was increasing 372 per cent, the value of the consumption of raw materials other than gold increased about 1.5 times; that of agricultural products, about 1.3 times; that of minerals and mineral fuel, about 4.9 times; that of water, 7 times; and that of all raw materials except gold and food, about 1.9 times. Only the consumption of forest products continued unchanged in value. Expressed as a percentage of gross national product, the value of raw materials consumed declined as follows between 1900 and 1950: all raw materials but gold, 23.9 to 12.8 per cent; all raw materials except gold and foodstuffs, 10.1 to 6.2; foodstuffs, 13.8 to 6.7; agricultural raw materials other than food, together with forest products, 6.8 to 2.2. Meanwhile the value of mineral fuel consumed rose from 2 to 2.5 per cent of gross national product, and that of minerals other than gold and fuel, from 1 to 1.2. (2) While minerals and raw materials play an important role in the world economy, we have less information concerning this role, since we lack a world Paley Report. Around 1949-50, however, the value of primary production (of which nearly one-fifth represented minerals and about one-eighth

³ See my "Limitational Factors in Population Theory: A Note," *Kyklos*, 1955, pp. 227-244, and "Aspects of the Economics of Population Growth," *Southern Economic Journal*, 1947-48, pp. 123-147, 233-265.

represented mineral fuel) amounted to something like three-tenths of world income. Even outside the United States mineral fuel made up about seven-twelfths of all mineral consumption.⁴ (3) The impact of significant increases in the input-cost of agricultural and/or other raw materials may be felt less in an advanced than in an underdeveloped country, since a relatively larger fraction of the latter's productive resources are engaged in raw-material production.

The first of these limitational factors—agricultural raw materials—has several sources, the significance of which for partial solution of the population problem varies. First, increases in the efficiency with which existing land is used, deemed capable of increasing average yield per acre by more than one-fifth, presuppose greater education, modification of institutions, and significant increases in working and other capital inputs per acre; but they do not entail a surmounting of barriers to trade, transportation, and migration. It is increases in output from this source, therefore, that seem most likely of realization at present. In the same category, perhaps, fall increases achievable through irrigation of land presently cultivated or susceptible of cultivation if irrigated—increases that reportedly might double prewar output. Second, cultivation of 1.3 billion acres not now used (900 million in South America and Africa; 100 million in Sumatra, Borneo, New Guinea, and Madagascar; and 300 million in northern portions of North America and Eurasia) might add at least the equivalent of prewar food production to the total amount of food available to the world. It is not likely that much of this land will soon be cultivated, however, unless obstacles to its settlement are removed, enough capital is made available for its exploitation, and the prospect is good that its exportable surplus can be profitably marketed.

Should the potentialities just described (corrected for the diversion of land to the production of inedible raw materials and to use as building sites) be realized, world food production might rise to 3-4 times its prewar volume. There would then be nutrition that was adequate, though far below American standards, for a population 2.5-3.0 times that of 1950, a number that could be reached sixty to seventy-five years from now. Beyond, except for additional and possibly significant improvements, lie algae, not perhaps a food that would tempt the palate of Lucullus, but nonetheless a promising source of nutriment.⁵

⁴The world data are quite rough; they are based upon W. S. and E. S. Woytinsky, *World Population and Production* (1933), pp. 315, 394, 455. The American data are derived from *Resources for Freedom*, a report by the President's Materials Policy Commission, 1952, I, pp. 6-7, II, p. 180. In the United States the ratio of BTU input to national income has fallen appreciably since World War I.

⁵On these points see Harrison Brown, *The Challenge of Man's Future* (1954), Chap. 4; Sir George Thompson, *The Foreseeable Future* (London, 1955); J. S. Burlew, *Algae Culture* (Carnegie Institution Publication 600, 1953); Robert Brittain, *Let There Be Bread* (1952); F. G. W. Smith and H. Chapin, *The Sun, the Sea, and Tomorrow* (1954);

Although the food-production potentialities described above appear to be great, they cannot be realized unless many difficult obstacles are overcome. For this reason some students anticipate but low rates of progress in world food production, little improvement in the relative position of low-income peoples, and continuation of the pressure of numbers upon food resources (particularly if present rates of increase continue). Presumably a 50 per cent increase in the real cost of a country's agricultural production (*ceteris paribus*) would approximate a 5-20 per cent reduction of per capita income.⁶

Whereas thirty years ago some looked upon a shortage of lumber, paper, and fibers as a major prospective manifestation of population pressure, F. G. Tryon apprehended that shortage of energy and rising fuel costs would check population growth and the advance of living standards—unless man learned to tap inexhaustible sources of power (water, wind, sun, photosynthesis, the atom).⁷ His conclusion is supported by recent estimates which suggest that cumulative American and world energy requirements over the next seventy-five years could exceed the net energy recoverable from quite economically accessible fossil fuels. Tryon's apprehension has been somewhat alleviated, however, by the fact that nuclear fuels, of which there is an abundant supply, may be made eventually to furnish as much as 60 per cent of all energy requirements, with nonexhaustible sources providing another 15 or more per cent. Tryon was sensible of the high correlation existing between input of energy and output of income and of the importance of energy for the utilization of ores, water, etc.;⁸ but he probably underestimated the disposition of energy-users to economize in its use as its price rose; and he did not allow adequately for the fact that *ceteris paribus* a doubling of real energy costs might reduce per capita income only several per cent.

F. J. Weiss, *Agricultural and Food Chemistry* (1953); L. D. Stamp, *Land for Tomorrow* (1952); E. Taschdjian, "The Hunger Problem," *Scientia*, 1949, pp. 208-219, 244-251; M. K. Bennett, *The World's Food* (1954).

⁶The late O. E. Baker put at 6-7 million square miles the amount of land cultivatable, at 50 per cent the average increase in yield per acre attainable over the level of the thirties, but at only 75 per cent above the prewar level, potential world crop production. His figures suggest, therefore, that adequate nutriment can be provided for a population of only 3.5 to 4.0 billion people. See his pamphlet, *The Population Prospect in Relation to the World's Agricultural Resources* (1947), pp. 4-5. See also J. H. Richter, "Population and Food Supply," *Social Research*, 1953, pp. 253-266; R. Barlowe, "Population Pressure and Food Production Potentialities," *Land Economics*, 1949, pp. 227-238; H. H. Villard, "Some Notes on Population and Living Levels," *Review of Economics and Statistics*, 1935, pp. 189-195; Sir John Russell, *World Population and World Food Supplies* (London, 1954); *The Determinants and Consequences of Population Trends* (United Nations, 1953), Chap. 10.

⁷See L. I. Dublin, ed., *Population Problems in the United States and Canada* (1926), pp. 109-110, 136-138.

⁸See P. C. Putnam, *Energy in the Future* (1953), pp. 231-254, 449-453; E. C. Olson, "Factors Affecting International Differences in Production," *AEA Papers and Proceedings*, May, 1948, pp. 502-522; J. F. Dewhurst, *America's Needs and Resources* (1955), pp. 903-909, 1099-1116; Thomson, *op. cit.*

While components of the third limitational factor—minerals other than fuel—give rise to scrap, this factor too is subject to the law of increasing economic entropy. Accordingly, even though iron, nickel, magnesium, manganese, bauxite, fertilizer ingredients, etc., remain relatively abundant, for the time being, other mineral reserves (e.g., copper, lead, zinc, tin, chromite) already have become very small, and their exhaustion is being accelerated, as is that of all nonrenewable minerals, by increases in population and its incremental rate of growth. It is to be expected, therefore, that deep mining and exploitation of the ocean, together with improvements in the use of metals and of other minerals, will presently become necessary, and that increasing attention will be given to economizing in the use of minerals.⁹ Inasmuch as mineral costs are relatively small, an increase in their magnitude may not depress per capita income greatly, though a decline in their availability may produce changes in industrial patterns.

Water—frequently described as a free good by nineteenth-century economists—has become a limitational factor in some regions and may become one in others. In several or more American states water consumption is close to the maximum attainable, and in others it will become so should population and per capita consumption continue to grow. In still other parts of the world, water shortages may be encountered, and they will increase in number as population and industrialization progress. Whence increasing efforts to economize in the use of water and to utilize salt water are to be expected.¹⁰

It is not always easy to assess with precision the significance of a marked increase, or decrease, in the availability of agricultural or other raw materials. Comparative costs and real income levels are affected, to be sure; and yet, as has been shown, these effects may not be very great. Often what is of more significance is whether, because certain materials are or are not available or accessible, particular activities may or may not be carried on, since industrial patterns are conditioned by the kinds of activities pursuable. Even then it is essential that the country's labor force be suitably skilled and equipped to work up the available raw materials.

II. Strategic Courses of Action

Only some of the strategic courses of action open to overpopulated countries can be considered here: technological improvements; techni-

⁹ On minerals, see *Resources for Freedom*; Woytinsky, *op. cit.*, Chaps. 10, 22; Smith and Chapin, *op. cit.*

¹⁰ *Resources for Freedom*, I, Chap. 10, IV, Chap. 9, V, pp. 83-98; Colin Clark, "Afterthoughts on Paley," *Review of Economics and Statistics*, 1954, pp. 267-273, and E. S. Mason, "Comment," *ibid.*, pp. 273-278; Brown, *op. cit.*, pp. 211-215; C. B. Ellis, *Fresh Water from the Ocean* (1954); *Water, Yearbook of Agriculture, 1955* (U.S.D.A., 1955).

cal and related education; capital formation; reorganization of economic life; international migration, trade, lending.

The importance of technological improvements, together with technical and related education, can hardly be overstressed. It is to technological improvements that a large part of the increase in per capita output experienced in the Western world must be imputed—perhaps half, perhaps more. Increasingly, as the experience of the Soviet Union appears to be demonstrating, both the introduction and the extension of technological improvements presuppose availability of a skilled labor force and easy accessibility to technical and related education. Furthermore, since the economies of nearly all, if not all, of the countries suffering from population pressure are technologically laggard, the mere introduction and adaptation of technologies already in use in advanced countries will greatly augment output; for a long time to come it will not be necessary for these countries to create new and unique methods.

Capital formation is of great importance, because of the direct income increasing effect of capital increments, because of the dependence of technological progress upon the availability of a sufficiency of capital, and because capital may be indirectly substitutable (within limits) for some of the factors which we have described as limitational. In advanced countries a 4-5 per cent saving rate often is essential to keep the wealth-population ratio constant when population is growing 1 per cent per year; and a like saving rate may permit an increase of close to 1 per cent per year in per capita income when population is constant, provided that the rate of technological progress is sufficiently high. Whence it may be said that a 1 per cent per year rate of population growth usually entails the sacrifice of an increase of something like 0.5-1.0 per cent per year in per capita income, with the magnitude of the sacrifice positively associated with the rate of technological progress. Population growth itself absorbs or neutralizes capital in various ways, thereby limiting the rate at which a collectivity can increase its stock of wealth per head. (For a detailed statement, see my "The Population Obstacle to Economic Betterment," *AEA Papers and Proceedings*, May, 1951, pages 342-354.) The supply of savings must be much higher, therefore, when numbers are growing than when they are not, given that a collectivity seeks to achieve a specific rate of increase in per capita income; but the supply is not likely to exceed 10-15 per cent, an amount that might permit the stock of wealth to increase 2-3.75 per cent per year.

Reorganization of the economic life of overpopulated countries usually is indicated for a variety of reasons. Thus mere formation of assets does not of itself insure continuing growth of per capita income; otherwise in many countries per capita incomes would tend to be higher

than they are, since man's disposition to increase assets (productive and unproductive) usually is strong even though his disposition to form productive capital may not be. Again, reorganization may make possible a much higher rate of capital formation than might otherwise be achieved, by strengthening a population's disposition and capacity to save, and by drawing into the orbit of productive activity a great deal of the underemployed labor found in underdeveloped economies. (E.g., see W. A. Lewis, "Economic Development with Unlimited Supplies of Labor," *The Manchester School of Economic and Social Studies*, 1954, pages 139-191.)

International migration, trade, and capital flow could contribute significantly to the alleviation of population pressure were they not subject to important constraints. Migration could carry numbers from places where the population-wealth ratio was relatively high to places where it was relatively low. Trade could increase international division of labor and thereby augment world production and cushion the impact of limitational factors. International capital flow could reduce international disparities in equipment per worker and might strengthen forces making for the international diffusion of the technologies developed in advanced countries. Individual countries troubled by the population problem might, it would appear, derive great relief from emigration, capital imports, and the export of products, particularly those that were labor-oriented. Yet, because of barriers to migration and because of costs attendant upon the transplanting of migrants, it is unlikely that emigration will significantly ease population pressure. It is unlikely, moreover, that capital imports will contribute greatly to aggregate capital supply in densely populated underdeveloped countries; these countries will have to provide most of the capital they use. Not only do inauspicious politico-economic conditions in underdeveloped countries, together with prospects of good earnings in developed countries, check the outflow of capital from high-income countries. The capacity of underdeveloped countries to obtain and utilize capital imports effectively is limited also by the lowness of their rates of domestic capital formation, by fiscal, financial, and technological circumstances, and by shortages of appropriately skilled personnel. Even in the nineteenth century, in countries then undergoing development, domestic savings greatly outweighed capital imports in importance.

The capacity of international trade to provide relief for population pressure, though great under possible conditions, is not likely to be great under probable conditions. Trade cannot overcome water shortages. It may not prevent hunger. In the past only about 7 per cent of world agricultural production has entered into foreign trade, with

Oceania, Latin America, Africa, and even Asia helping to make up Europe's 10 per cent deficit. Of the three major underdeveloped areas, only Asia may be described as exporting little raw produce on the balance; Africa and Latin America remain important net exporters. Trade cannot wholly offset mineral shortages. Although mineral production is geographically highly concentrated and most countries have to import some minerals, only about one-fifth of the world output of minerals has been entering international trade, with fossil fuels, copper, iron, tin, and lead predominating.¹¹ It is not likely, therefore, that many countries could make up great deficits of raw materials by exchanging for them both labor-oriented products and selected but relatively abundant raw materials. A fortiori, sheer size may be a source of advantage to a country, for when it is relatively large, it is relatively free of man-made barriers to the pursuit of comparative advantage and relatively capable of utilizing wide-scale governmental intervention to modify the impact of the price system upon the use of resources and the formation of capital and skill.

III. The Problem Areas

I define as a problem area any area in which the per capita output of goods and services is very low, in large part because numbers are great and becoming greater. I do not so define the Soviet Union, English-speaking North America, or countries situated in Europe and Oceania, even though population pressure is present in some of these parts. Although per capita income remains low in many of these excluded countries, it still is a number of times as high as that reported for the overpopulated, low-income continents. In most of these non-problem-area countries, population density appears to exceed the income-optimum level. In fact, population density is three-fourths as high in Europe and Western Russia as in Eastern China and Southern India and nearly two-thirds as high in the Northeastern United States as in Europe. In these excluded countries, however, population growth is under effective control, or can shortly be brought under effective control.

Incomes are absolutely and relatively low in Asia, Africa, and Latin America (Woytinsky, *op. cit.*, Chapters 12-13). In Asia and Africa, according to 1938 and 1948 estimates, per capita income was only about one-third as high as that reported for the world as a whole; in Latin America it was 0.65-0.70 as high. Moreover, while per capita incomes vary considerably from country to country, they are absolutely and

¹¹ Woytinsky, *op. cit.*, pp. 320-324, 595-597, 769-780; *Resources for Freedom*, *passim*; J. Humlum, *Atlas of Economic Geography* (1955); U. S. Department of State (Publication 3428), *Energy Resources of the World* (1949), pp. 22-26.

relatively low in most of the countries situated in Asia, Africa, and Latin America. According to 1948 estimates, per capita incomes above \$200 were found only in Israel, the Union of South Africa, Cuba, Puerto Rico, Argentina, Uruguay, and Venezuela. At this time world per capita income approximated \$230. In most Asiatic countries and in some African and Latin-American countries per capita incomes were below \$100.

The low-income countries may be assembled into two classes: those marked by high density of population and those marked by low density. In the former class fall most of the countries in Asia and some of the countries in Africa and Middle America; in the latter class fall principally countries of South America and Africa. In 1950 the number of persons per square mile in Asia (126), while below the number found in Europe (207), was six times the number reported for North America (20) and three times that estimated for the world as a whole (42). By contrast, the numbers reported for South America (16) and Africa (17) were below that found in North America (20) and less than half that estimated for the world as a whole. Even in Middle America the number (44) was only about one-third of that found in Asia. These figures are reflected in the amounts of arable land available per capita, even though reportedly the percentage of land suitable for agriculture ranges from 37 per cent in Europe to around 3-6 in Oceania, Asia, Africa, and South America. The number of acres per head varies from 0.64 in Asia and 1.02 in Middle America to 1.47 in South America and 2.22 in Africa; corresponding figures for Europe, the world, and North America are 0.94, 1.28, and 3.4.

Whereas nearly all the countries situated in Asia are densely populated, only some of those located in Africa and Latin America are heavily peopled. Of the countries in Asia only a few have less than 40 persons per square kilometer: e.g., Burma and Cambodia, 28; Laos, 5; Iran, 12; Iraq, 11; Jordan, 14; Syria, 19; Turkey, 29. Population density, though relatively heavy in coastal areas, does not exceed 40 per square kilometer in any of the countries of South America; it is in excess of 40 in but three of the countries of Africa (Egypt, Nigeria, and Ruandi-Urundi), and in six regions of Middle America (Cuba, Dominican Republic, El Salvador, Puerto Rico, and the British West Indies).

For purposes of discussion, we include among our densely populated problem areas Middle America, all of Asia, and that portion of Africa which is part of the Middle East. We exclude the rest of Africa and South America because, while the countries situated therein are economically underdeveloped, they are not yet heavily peopled, though eventually they will be if current growth rates persist. Within these two regions, moreover, are found nine-tenths of the as yet unutilized but cultivable tropical soil, a great deal of water power, rich iron reserves,

and deposits of uranium and thorium. For lack of suitable coal, however, industrialization has made relatively little progress in South America and has been retarded in Africa. Even so, because the resource equipment of these two areas remains underexploited, it is still possible for their inhabitants to bring mortality and natality into balance at low levels before population pressure becomes oppressive.

IV. Limitational Factors in the Problem Areas

In 1950, of the world's 2.4 billion people, there lived in problem areas nearly 1,400 millions, 1,272 in Asia (excluding the USSR), 51 in Middle America, and about 66 in northern and northeastern Africa. Of this number, 1,057 millions lived in five countries: China, India and Pakistan, Indonesia, and Japan—the first two of which, and in some measure the others, enjoy advantages of sheer size. While something like 5/14 of the inhabitants of the problem areas may be thought of as in the labor force, many are underemployed and hence available for use in the construction of capital and in related activities. In most of the problem areas, it is proving difficult to form productive capital at a rate much in excess of that sufficient to counterbalance the rate at which population is growing. Thus India is not considered likely to get its saving rate above 8-9 per cent, of which perhaps half is required to equip new increments of population.

Except for the presence of building materials which are to be found in most parts of the world and for some bauxite deposits, Middle America, other than Cuba and Mexico, is poorly endowed with natural resources. Considerable unutilized productive land is available only in Mexico. Cuba, while short of coking coal, contains iron and several lesser minerals (e.g., chromium, nickel, manganese). Mexico has, besides oil and reserves of iron and coking coal, significant deposits of a number of other minerals (e.g., gold, silver, lead, zinc, antimony, beryllium, salt, mercury, copper, cadmium, graphite, fluorspar). Although propinquity to the United States is a source of commercial and technological advantage to most of the countries situated in Middle America, they are too small (except for Mexico) ever to be other than economic satellites to larger meta-states (e.g., North America, sterling bloc).

The countries composing the Middle East and contiguous parts of Africa are generally poor in resources, and too small to make good use of what they have. Here, as in the rest of Asia, the population, in the course of centuries of settlement, has carefully selected out the land cultivable under the technologies known to it, and there is little additional land available for cultivation in the absence of great technological change. Of potentially productive land there is considerable only in Iran and Ethiopia, and small quantities in but several additional

countries (e.g., Syria). While petroleum is present in abundance in some Middle Eastern countries, the region is short of longer run energy reserves. It is very short also of iron and, except for the minerals found in Turkey (e.g., chromite, mercury, salt) and North Africa (e.g., antimony, beryllium, sulfur, phosphate, salt, cobalt, manganese, lead, gypsum), of other minerals. In these parts, therefore, as in much of Middle America, industrial opportunities are limited.

Elsewhere in Asia there may be opportunity to develop two 20-million-ton-a-year steel industries, one in India and possibly one in China, which, while relatively short of iron, is long on coal. Much of the additional mineral wealth (including uranium) of Asia is also located in these two countries. Some iron is to be had in Indonesia, the Philippines, and Korea, but only Korea has sufficient coal. Some minerals are to be found in still other countries (e.g., Malaya, Burma), but their industrial prospects appear quite limited. With the possible exception of India, Pakistan, and Burma, there is little unused potentially productive land other than that to be had in Borneo, Sumatra, and New Guinea.

The situation of Japan—the most advanced country in Asia—explains what may eventually be in store even for South America and lower Africa. While Japan proceeded to industrialize, its population trebled because mortality fell and natality was not controlled, and numbers are likely to increase another 30-35 per cent despite the rapid progress family limitation is making. Japan must presently import at least one-fifth of its food consumption, given only a minimum adequate diet; more than half its wood and fiber requirements; over nine-tenths of its petroleum and some high quality coal; “nearly half of its phosphate, more than one-quarter of its potash, half of its iron, four-fifths of its lead, a substantial portion of its salt, all its aluminum, and nearly all the tin, antimony, and many other minor items.” Her pressure to import is likely to grow, if she increases her national income 3-3.5 per cent per year, but probably not enough to carry the ratio of exports to national income greatly above the prewar level of 10-11 per cent.¹²

Conclusion

At the outset, it was hypothesized that world population would increase 1-1.5 per cent per year for many decades to come. But there-

¹² On Japan, see F. A. Ackerman, *Japan's Natural Resources and Their Relations to Japan's Economic Future* (1953), Chaps. 20-21; S. Kuznets, W. E. Moore, and J. J. Spengler, eds., *Economic Growth: Brazil, India, Japan* (1955). Other data used in this section are from Woytinsky, *op. cit.*, Chaps. 10, 15, 21-25; *World Iron Resources and Their Utilization* (United Nations, 1950), and *Coal and Iron Ore Resources of Asia and the Far East* (United Nations, 1952); *Energy Resources of the World*, cited in note 11 above; and Russell, *op. cit.*

after stress was placed upon the comparative nonaugmentability of final product, since science cannot transcend boundaries set by the "principles of impotence" and since some of the stuff entering into final product is limited in quantity and even subject to the contractile force of entropy. Is it reasonable to assume, therefore, that mortality will be sufficiently reduced relative to natality to permit continuation of a 1-1.5 rate of population growth? A negative answer is indicated.

The reasons why a negative answer is indicated are several in number. First, a decrease in infant mortality greatly increases pressure upon family income; thereby compelling re-examination of the economic implications of family augmentation. Given improvement in the political and social status of women, consciousness of this pressure will be intensified. Second, income and consumption expectations are likely to rise more rapidly than the capacity of developing backward economies to satisfy them, with the result that the disposition to substitute goods for offspring will be strengthened. Third, if governments find much of the resources they sequester for economic development absorbed by population growth instead of by income increasing investment, the governments themselves will be compelled to intervene and take steps to reduce the rate of population growth. Even communist problem-area satellites will find it very difficult to live with the communist principle: "The more, the merrier." Industrial development and modernization of economic life, as Veblen long ago observed, make for the rationalization of behavior, reproductive behavior included. Rationalization increasingly implies, when the augmentation of output is difficult, that men ask not, "How many more people can be accommodated?" but "Of what use is further population growth?" It is to be anticipated, therefore, that men will not want their efforts at modernization to be little more successful than were the activities of Sisyphus. Whence it is quite possible, but by no means certain, that age-specific fertility and natality will fall sufficiently to permit a considerable fraction of the prospective increase in the productive capacity of underdeveloped countries to be devoted to improvement of the material scale of living. But this implies a much more rapid decline in natality than took place in Japan or countries of Europe; and so rapid a decline may call for considerable state intervention.

APPENDIX

Three curves appear in Figure 1. Curve π depicts the response of per capita income (= output per capita) to increases in population, with the highest point O representing the level of average income associated with what is usually called the income-optimum population (which lies on the Ox axis, at the point where a perpendicular dropped from O

intersects the abscissa). Curves I and II are indifference curves joining combinations of per capita income and population which the population of the collectivity under analysis finds equally attractive; each may be said to belong to a different family of curves. If curve I rules, equilibrium exists at *O* which may be called the "Wolfe point" after A. B. Wolfe's definition of the optimum (in Dublin, *op. cit.*, page 68). If, however, relatively more importance is attached to population, and curve II rules, equilibrium exists at *P*. Should changes in population magnitude be under the empire of the collectivity's indifference map, technology and resources being given, numbers would tend toward

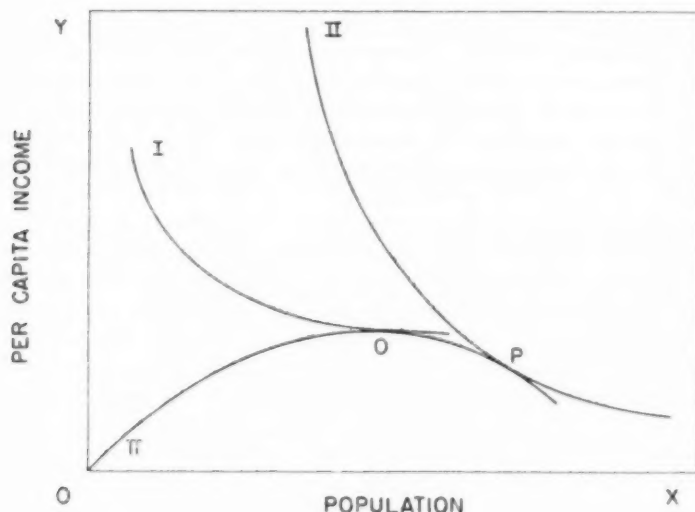


FIG. 1

the population magnitude associated with *O* if the map represented by curve I ruled, or to that associated with *P* if the map represented by curve II ruled. Then, given improvement in technology or in available resources and a corresponding upward shift of curve π , new equilibria would be established. Given the map represented by curve I, the new equilibrium point would probably lie directly above *O*; all or nearly all the improvement would be devoted to increasing per capita income. If, however, the map represented by curve II ruled, the new equilibrium point would lie northeast of *P*; the improvement would be devoted to increasing both per capita income and population. Should the available stock of resources shrink greatly and curve π shift downward in consequence, a converse movement would result; given the curve-I map,

only per capita income would decline significantly, while, given curve-II map, both population and per capita income would decline.

The argument just presented is somewhat misleading on at least two counts. First, changes in population magnitude are not under the empire of the collectivity's indifference map, even given that such map exists. Changes in population magnitude reflect individual preferences which may or may not be adequately represented in this map, together with other circumstances even less adequately represented. Second, the argument presented implies greater fluidity and greater capacity on part of the collectivity to introduce demographic change than is realizable in reality. Population tends to change markedly only in one direction; it tends to increase, particularly when aggregate income rises, but it does not tend to decrease, even when aggregate and per capita income fall significantly. Per capita income being much more mobile, it is the level of per capita income that tends to change when population changes, or when curve π shifts. Accordingly, if the collectivity is overpopulated (as it would be, e.g., if population exceeded the number associated with point P and average income were below the level associated with P), a downward adjustment in numbers does not take place; at most, Malthusian and other checks operate to diminish the rate of natural increase. Relief must be sought through an upward shift of curve π , and yet such an upward shift may be prevented by the existing magnitude of population, together with the fact that this magnitude may be increasing. When such a situation obtains, population and productive power are in a state of persisting imbalance. Escape from this state is hardly to be accomplished through a diminution of numbers, since prevailing values and institutions do not conduce to diminution. Escape is likely, therefore, only if somehow per capita income can be increased sufficiently. For a fuller account of the subject of this note, see my "Welfare Economics and the Problem of Overpopulation," *Scientia*, 1954, pages 128-138, 166-175, and "Some Economic Aspects of the Subsidization by the State of the Formation of 'Human Capital,'" *Kyklos*, 1950, pages 316-343.

CURRENT ECONOMIC THOUGHT AND ITS APPLICATION AND METHODOLOGY IN CONTINENTAL EUROPE

THE SCANDINAVIAN COUNTRIES

By HANS BREMS
University of Illinois

The combined population of the three Scandinavian countries is equal to that of the state of New York. To Western culture at large, their peoples have always contributed more than their share. They, not Columbus, seem to have discovered America, and their later explorations on the frontiers of human knowledge have fully measured up to this good beginning. It is fair to say, I think, that economics is no exception. The credit goes to such factors as good elementary and secondary educational systems, unquestioned academic freedom, and, always conducive to good political economy, the Scandinavian insistence on good government.

Like its subject matter, economics itself is evolutionary, and in Scandinavian economic thought the marks of a great past are easily identified. Although very much alike in general outlook, each of the three countries has had its own distinct tradition in economics.

Sweden

Oldest and most important is the Wicksellian tradition. That graduate student of mathematics who later in life turned to economics, Knut Wicksell, broke new ground, not in one but in many parts of his newly chosen field. He was the first to prove, in 1893, the product-exhaustion theorem of the distributive shares (one year ahead of Wicksteed), he was the first to integrate, in 1898, the theory of money with the theory of capital and interest, and he was the founder of dynamic macroeconomic analysis of the sequence-model type. All this he had accomplished before the turn of the century.

A straight line leads from Wicksell to the Stockholm School. In his *Penningpolitikens medel* ("The Means of Monetary Policy," Malmö, 1930, translated in *Studies in the Theory of Money and Capital*, London, 1939), Erik Lindahl refined the Wicksellian cumulative process and added to it a government sector furthering or hampering the process by its purchase of goods and services and its collection of taxes. Also, Lindahl sprinkled his text with passages on the special case of unemployed resources. Consumption was made a function not only of in-

come but also of income distribution. A Wicksellian cumulative expansion is started by lowering the money rate of interest relative to the real rate. The expansion itself will cause a redistribution of income such that those with a relatively strong disposition to save (the entrepreneurs) will gain at the expense of those whose disposition is weak (the capitalists and the workers). By thus taking into account business saving and income redistribution, Lindahl explained what to classical economics was a paradox; i.e., that a lower rate of interest could raise the aggregate savings ratio. Fortunately, Lindahl has recently given us his mature views (cf. his "On Keynes' Economic System," *Economic Record*, May and November, 1954). Another straight line leads from Wicksell's *Finanztheoretische Untersuchungen* (Jena, 1896) through Lindahl's *Die Gerechtigkeit der Besteuerung* (Lund, 1919) right into Paul Samuelson's latest contribution to the pure theory of public expenditure, published in the current issue of the *Review of Economics and Statistics* (November, 1955).

In the early thirties, a bright new generation of Swedish economists benefited from their country's head start. Called upon by the government to study the causes and cures of unemployment, Hammarskjöld studied the international propagation of business cycles, Myrdal (the brilliant author of *Monetary Equilibrium*, published in Swedish in 1931, in English in 1939) studied the macroeconomic aspects of fiscal policy, and Ohlin studied monetary theory, monetary policy, public works and subsidies, and tariffs (1934). Ohlin anticipated the Keynesian liquidity-preference schedule and said that its high elasticity at low rates of interest, not the scarcity of saving, constitutes the real floor under the money rate of interest. Among government reports in any country, the quality of these monographs is unexcelled. With the publication of Erik Lundberg's *Studies in the Theory of Economic Expansion* (London, 1937) the flourishing of the Stockholm School reached its climax. Parallel to the theoretical work went important empirical work; e.g., the estimation of Swedish national income from 1861 through 1930.

Is there a causal relationship between the early and complete Swedish recovery, on the one hand, and all the good advice given and the willingness of the government to heed it, on the other hand? Lundberg emphatically denies this, but at least Swedish economists have since enjoyed a reputation which made Ohlin the leader of the important liberal party and gave Myrdal a prominent position in the labor party. Alternating, both have occupied the same cabinet post. A positive effect of all the politicizing has been that Swedish public debate on economic matters is conducted on an unmistakably higher level than the debate on such matters in Norway and Denmark—not to carry

the comparison beyond the borders of Scandinavia. A negative effect of the politicizing, coupled with the fact that a Swedish professor's teaching load is almost up to himself, was that the next generation of academic economists was let down. (Rumor has it that Swedish orals were occasionally taken by candidates invited to join their busy professor on his train ride!) On the whole, an anticlimax became noticeable in the decade between 1940 and 1950. And, characteristically enough, when the revival finally occurred it began outside the Stockholm School.

First, Erik Dahmén published his *Svensk industriell företagarverksamhet* ("Swedish Entrepreneurial Activity," Stockholm, 1950), a blending of history, measurement and Schumpeterian business cycle theory. Dahmén studied the period from 1919 to 1939 with emphasis on technological change and innovation, malinvestment, advance and stagnation, and entry of new firms. Methodologically, his work is a product of the Lund School, founded by Johan Åkerman and contrasting with the Stockholm School in its insistence on a blending of the institutional and the time-series approaches. Neither was econometrics proper a part of the Stockholm tradition, but one recent Swedish contribution to this field has been universally praised in the English-speaking world; i.e., Herman Wold and L. Jureén, *Demand Analysis* (Stockholm and New York, 1952).

Made unexpectedly timely by the inflationary wave following the Korean war, Bent Hansen's *Theory of Inflation* was published in London in 1951. And once again the Swedish academic economists were asked to help their government, this time to study the causes and cures of inflation in a fully employed economy. Two monographs of the new survey have already appeared; the first is Bent Hansen's *Finanspolitikens ekonomiska teori* ("The Economic Theory of Fiscal Policy," Stockholm, 1955). Along lines similar to Tinbergen's *On the Theory of Economic Policy* and similar to much recent Norwegian thought, Hansen states the problems of public policy very lucidly as follows. Let a fully employed economy be described by a system of n linear and nonhomogeneous equations in n variables:

$$(1) \quad a_{11}x_1 + \dots + a_{1n}x_n = a_1$$

$$\vdots$$

$$(n) \quad a_{n1}x_1 + \dots + a_{nn}x_n = a_n$$

where the a 's are parameters, m in number. Some of these parameters can, others cannot, be fixed by government action. The x 's are the n variables; two of them could be the price level and the level of employment, say x_1 and x_2 , respectively. Now let the fully employed economy be disturbed; e.g., due to a change in government expenditure

for military purposes or due to a change in export demand. Usually any one of the values of the x 's will now change. However, we do not tolerate any changes in x_1 and x_2 , for we still want full employment and no inflation. This can be expressed by setting up two additional equations:

$$\begin{array}{ll} (n+1) & x_1 = \bar{x}_1 \\ (n+2) & x_2 = \bar{x}_2 \end{array}$$

Consequently, we now find ourselves with an overdetermined system having $n+2$ equations but merely n variables. The only remedy is to allow two of the a 's to vary. This means turning two parameters into variables and eventually finding the values of these two former parameters which are compatible with full employment and stable prices. Which two parameters we turn into variables is immaterial from the point of view of the determinateness of the system. Bent Hansen's book is devoted to a systematic study of a good many of the fifty-five theoretically possible ways in which two parameters can be picked among eleven fiscal-policy and monetary-policy parameters used in his macroeconomic model.

Hansen himself is fully aware of the inherent difficulty of his model; i.e., that the structure of the Swedish, or any other, economy is not sufficiently well known to enable us to predict the effects of public policy measures with sufficient accuracy. This difficulty was documented quite convincingly by Erik Lundberg in his survey of postwar Swedish economic policy, *Konjunkturer och ekonomisk politik* ("Business Cycles and Economic Policy," Stockholm, 1953; cf. review articles by the present writer in the June, 1954, issue of the *Journal of Political Economy* and by Svend Laursen in the May, 1955, issue of the *Quarterly Journal of Economics*).

The second monograph of the inflation survey is Bengt Metelius, *Utlandstransaktionerna och den svenska ekonomin* ("Foreign Transactions and the Swedish Economy," Stockholm, 1955). This book is very much in the Stockholm tradition, applying the sequence-model approach originated by Lundberg in his *Studies* (1937). Despite its ingenuity in detail, it shares with Lundberg's book the fundamental weakness, pointed out by Lloyd Metzler in the *Review of Economics and Statistics* (August, 1941); i.e., that it fails to find the roots of the difference equations it implicitly employs.

Norway

This carries us to the second great Scandinavian pioneer, Ragnar Frisch, who certainly never failed to find the roots of his difference equations. Maybe his most important single work was his thirty-five-

page essay, "Propagation Problems and Impulse Problems in Dynamic Economics," in *Economic Essays in Honour of Gustav Cassel* (London, 1933). In his *Foundations*, Paul Samuelson dates the upheaval in economic thought (from static to dynamic modes) from this essay. The resulting change in outlook—again I am quoting Samuelson—can be compared to the transition from classical to quantum mechanics. While neoclassical economic theory of, say, the Walras type determines the levels of prices and outputs, a dynamic system would determine the time paths of all these things. Frisch suggested the study of the business cycle as a free oscillation. The most important feature of a free oscillation is that the length of the cycles and the tendency towards dampening are determined by the intrinsic structure of the swinging system, while the intensity (amplitude) of the fluctuations is determined primarily by the exterior impulse. Hence the sharp distinction between propagation and impulse. For business cycle theory, the important conclusion is that the economy may fluctuate regularly, but damped, even though impulses occur irregularly as long as they occur frequently enough to keep the system swinging. One impulse that occurs irregularly would be, of course, Schumpeterian innovation. Frisch now set out his dynamic macroeconomic system in terms of differential and difference equations with all their paraphernalia of complex roots in polar form, now so familiar to all of us after the publication of Samuelson's "Interactions Between the Multiplier Analysis and the Principle of Acceleration," or Baumol's *Economic Dynamics*.

Like Wicksell, Frisch came to economics from mathematics and physics. As one of the founders of Econometric Society and as the editor of *Econometrica*, his influence is international. But nowhere else has his influence been as profound as at Oslo. The application of rigorous methods to economic problems had great potentiality, and at Oslo pioneering work was done in a large number of fields ranging from measuring marginal utility to measuring the circular flows of the economy. Much of this work is not well known outside Norway (not even in Sweden or Denmark), because of Frisch's habit of publishing his ideas in sketchy mimeographed form; his institute at Oslo has by now published 370 mimeographed so-called "memoranda," written by himself and his associates, Trygve Haavelmo, Olav Reiersøl, Erling Sverdrup and others.

Haavelmo's *Probability Approach in Econometrics* (supplement to *Econometrica*, 1944) as well as his recent model building in the field of international disparities of growth, *A Study in the Theory of Economic Evolution* (Amsterdam, 1954), are too well known to call for summary here. Other Frischians of high caliber, such as Odd Aukrust and Petter Jakob Bjerne, occupy the top positions in Norway's Cen-

tral Bureau of Statistics. Since the end of the thirties they have worked on national income analysis. The Norwegian gross national product and its composition have now been calculated back to 1900, and at the present time progress is being made in expanding the national accounts into input-output tables.

In their pursuit of the econometric truth, the Norwegians have shown more ingenuity, skill, enthusiasm and optimism than have their Swedish and Danish brothers. Some day, they think, they are going to possess a complete model of the Norwegian economy, and from that day on, the objectives of public policy will be reached by sure-footed manipulation of the parameters of this model. Whether this difference in outlook among the economists and the admitted superiority of Norwegian econometrics has any connection with the fact that during the period from 1945 to 1950 Norway's economy was more strictly controlled than were the Danish or the Swedish economies, is hard to say. A parallel case is that of the Netherlands; here, too, econometrics and controls appeared together. Mr. Theil, I hope, will offer his views on this.

Denmark

Not matching the breadth of the Stockholm School or the depth of the Norwegian econometrics, Danish economic thought did produce a few fine contributions to selected fields of microeconomics. As early as 1924, Ivar Jantzen arrived at a brilliant formulation of the laws of cost under the assumptions of indivisibility and durability of inputs (cf. the present writer's short account in the September, 1952, *American Economic Review*). While Jantzen's first assumption bears a marked resemblance to modern linear programming, his second assumption about the durability of inputs went beyond it. Another early Danish pioneer is Frederik Zeuthen, whose *Problems of Monopoly and Economic Warfare* (London, 1930) broke away from the purely competitive model and combined fewness of sellers and buyers with product differentiation. Zeuthen freely used the Jantzenian cost analysis and thus was saved from excessive use of the U-shaped marginal cost curve, later to become discredited by empirical surveys in this country. A particularly original and useful piece was Zeuthen's chapter on the process of bargaining between employers and employees tightly organized in the Scandinavian fashion. A few months ago, Zeuthen's mature views have been made available in this country in his *Economic Theory and Method* (Harvard, 1955). Danish thinking in the microeconomic field was greatly enriched by the presence of Erich Schneider during the decade 1935-45. Schneider applied the Swedish distinction between *ex ante* and *ex post* to cost accounting,

investment and interest theory, and to duopoly theory—all neglected by the Swedes themselves. The traditional Danish interest in microeconomics has recently produced a variant form of operational research; i.e., Arne Jensen's *A Distribution Model Applicable to Economics* (Copenhagen, 1954). From the operation through time of a Markoff process or a Markoff chain, Jensen develops statistical distributions and applies them to propagation problems, to the theory of supply and demand, to the theory of risk and finally to traffic programming. Another modern result is Sven Danö's ingenious application of linear programming to cost minimization in a Milton, Massachusetts, ice cream plant, soon to be published (in English). Still another is Bjarke Fog's empirical study of cartel price making. A third branch of microeconomics actively studied in Denmark is non-price competition. In 1937, Børge Barfod had presented an ingenious static model of optimum advertising outlay, and recently Arne Rasmussen has published his *Pristeori eller parameterteori* ("Price Theory or Parameter Theory," Copenhagen, 1955), which develops important dynamic aspects of nonprice competition.

In terms of scholarly quality very few Danish government reports match their Swedish opposite numbers, but one is Winding Pedersen's industry studies of collusive practices, published by the Danish trust committee set up in 1949 under his chairmanship.

Located in Scandinavia's southwestern corner, Denmark is, perhaps, more exposed to Anglo-Saxon currents of thought than is Norway and Sweden. Besides, lacking domestically-produced substitutes for Keynesianism, Denmark imported the latter with greater enthusiasm. Although lacking Hansen's vision and clarity of presentation, Jørgen Pedersen did for Denmark much of what his contemporary Alvin Hansen did for this country. Most impressive, perhaps, among the younger Danish Keynesians is Jørgen Gelting who, in *Nationaløkonomisk Tidsskrift* (1941), formulated the balanced-budget theorem, later to become so famous in the hands of Somers, Samuelson, Hansen, and Haavelmo. Also, in 1948, Gelting presented an ambitious estimation of the structural parameters of the Danish economy, worked out single-handedly within a Keynesian framework.

In two recent surveys of the Danish national product for 1930-46 and 1946-49 by the Department of Statistics of the Danish government, there is for the first time a tabulation of interindustry flows on capital account, potentially to be incorporated in a dynamic Leontief model. Collaborating with Copenhagen's Poul Nørregaard Rasmussen, the Department has work in progress on an extensive Danish input-output table.

This brings us to an application of economic thought which is rather

unique. With Nørregaard Rasmussen and Poul Winding as collaborators, Carl Iversen, of Copenhagen, the well-known author of *Aspects of the Theory of International Capital Movements* (London, 1935), has published *Monetary Policy in Iraq* (National Bank of Iraq, 1954). While its Iraqi readers may be mostly interested in the advice given, economists elsewhere will notice the unusually refined tools of analysis applied, including sequence models and multipliers based on alternative assumptions about the intrinsic structure of the Iraqi economy.

Conclusion

The first postwar decade of Scandinavian economic thought does not match the last prewar decade. Now more on the receiving end of the great international give and take of economic ideas, Scandinavians seem to emphasize application. There is nothing fundamentally new, comparable to, say, activity analysis or the theory of games. In this sense, the prewar roles of the United States and Northern Europe seem to have been exactly reversed. But just as almost any visitor from the United States finds Scandinavian ideas and ways very much like his own, the economist will find there no signs of stagnation and backwardness so painfully conspicuous in economic thought in some other parts of Europe.

ON THE THEORY OF ECONOMIC POLICY

By H. THEIL

Netherlands School of Economics, Rotterdam

I. Introduction

Having been asked to tell something about ideas that are alive among Dutch economists, I do not think that my choice is very difficult. The subject I want to consider, viz., the theory of economic policy, was first analyzed by J. Tinbergen a few years ago (*On the Theory of Economic Policy*, Amsterdam, 1952), and the influence of his work in this field grew so rapidly that at present quite a few economists—and not only econometricians—are thinking in terms of his concepts. Of course, no one can maintain that in our days an analysis of the theory of economic policy can be really the first in an absolute sense; but it is not easy to find an earlier systematic analysis which is so clear and simple and—as I hope to indicate—so well suited for further development as Tinbergen's.

This paper is subdivided as follows. Section II gives a brief exposition of Tinbergen's ideas in the light of the circumstances that induced him to work them out. Section III is devoted to some of the difficulties connected with the approach, which are illustrated in Section IV by means of an example. Further problems, especially those of model errors, are sketched in the last section.

II. Tinbergen's Theory of Economic Policy

When the second World War was over, the Netherlands as well as several other countries had to face the difficult situation of limited means and many expensive but not unreasonable desires. On the one hand there was the destruction of land and capital equipment due to war and occupation, which called for repair—but this could only partly be done by the Dutch industry itself just because of this destruction. On the other hand, the possibility of buying equipment from other countries was seriously limited, for the ability to pay depends largely on the ability to export, which was only small in those days, again because of the destruction. It is hardly necessary to tell you how important Mr. Marshall's European Recovery Program was in the actual solution of this problem.

In such a situation it is only too easy for politicians to formulate inconsistent desires; e.g., raising the level of consumption, lowering the number of hours worked per week, less dependence on foreign aid,

etc. Tinbergen's principal idea was that a clear insight should be given as to this problem of consistency. The means which he proposed in order to achieve this goal is an econometric equation system. I shall not try to sketch in any detail the successive equation systems that have been used for this purpose in the Netherlands in recent years. (One of the systems was published in the Central Economic Plan of 1955.) For my present purposes it is sufficient to say that they are of roughly the same size as Klein's well-known model of the economic system of the United States but that, for obvious reasons, more attention is paid to imports and exports.

The argument is then as follows. The variables of such an equation system are either endogenous or exogenous; e.g., exogenous variables are the volume of government expenditure and the international price level of raw materials and endogenous variables are the level of employment, aggregate consumption, etc. If the system is complete, it has—by definition—as many equations as endogenous variables. Under certain general assumptions it is then possible to express each endogenous variable separately in terms of all exogenous variables; this is reduced form of the equation system. It describes each of the variables like employment, consumption, balance of payments, etc., as explicit functions of the volume of government expenditure, of the international price level, and so on. Suppose, however, that the number of equations is not only equal to the number of endogenous variables but also to the number of exogenous variables. In that case it is—again under certain assumptions—possible to write each exogenous variable as a function of all endogenous variables. In the above example this means that the volume of government expenditure is written as dependent on consumption, employment, etc. Clearly, this is just the other way round when compared with the reduced form.

The second variant (we might call it an "inverted reduced form") is the one which Tinbergen needs. It regards the endogenous variables as given and describes the values of exogenous variables as dependent on these. Suppose then that we fix certain values of endogenous variables, to be called "target values," a priori; e.g., we fix the employment level at 95 per cent of full employment, the balance of payments at zero, etc. Then the inverted reduced form shows which set of exogenous values (if any) corresponds to these targets. If such a set exists and if, at the same time, all exogenous variables are controlled by the policymaker, this set describes the measures that should be taken by him in order to reach the targets. If there is more than one set, certain degrees of freedom arise; if there is no such set, the targets are "inconsistent" in the given situation and must be replaced by less ambitious ones.

III. *Some Problems Connected with Tinbergen's Approach*

It will be clear that this approach is simple and therefore attractive, but at the same time that several difficulties are involved. First, there are in general certain exogenous variables in the system which cannot be controlled by the policy-maker. The weather is a classical example, but several others are more important in this connection, like the international price level of raw materials, the national incomes of other countries, etc. If the system contains such variables and if the policy-maker is concerned with the economic situation of next year (say), then he should make a prediction of the values which these variables will assume in next year. When the remaining number of exogenous variables, which can be controlled by the policy-maker, happens to be equal to the number of equations in the system, the approach of preceding section can again be applied.

However, the forecasting procedure just mentioned implies the introduction of an element of uncertainty. There are three distinct sources of uncertainty in this connection, of which this is the first. The second is the fact that econometric equations are usually characterized by disturbances, about which only probability information is given. The third is that the "true" parameters of the model are unknown, and that their statistical estimates are merely imperfect substitutes. Therefore, even if noncontrolled exogenous variables are absent and even if there are no disturbances, the statements about the numerical size of the measures to be taken in order to reach certain targets are only approximate. But these provisos are not fulfilled, so that we must expect prediction errors and disturbances to yield errors in addition to those of the approximation.

Finally, the choice criterion of target values is not conventional. It implies that the policy-maker is supposed to be "satisfied" with the "utility level" corresponding to these targets. It does not imply that the policy-maker tries to reach the maximum utility that can be attained under the restrictions imposed upon him by the structure of the economy—except for the special case when the targets coincide with the saturation levels. Hence the choice criterion of target values is not optimal or "best"; it has the character of "good enough." This does not mean that it has to be rejected. On the contrary, there is sufficient reason to believe that the criterion is realistic for many actual policy decisions. (See also H. A. Simon, "A Behavioral Model of Rational Choice," *Quarterly Journal of Economics*, 1955, pages 99-118.) But its suboptimal character is sufficient to justify a further exploration.

IV. *A Simplified Example*

The following (considerably simplified) example may be useful in order to make these problems more transparent. Suppose our policy-

maker is a minister of finance or of economic affairs, who is interested in the employment level (E) of his country and in its balance of payments (B). Suppose also that the volume of government expenditure (G) is the policy-maker's instrument; finally, that the interrelationships between the relevant variables (written as deviations from their present values, unless otherwise specified) are the following:

$$(1) \quad P = C + I + X + G,$$

a definition equation which describes the aggregate volume of production (P) in terms of its components: consumption (C), gross investment (I), exports (X) and government expenditure, all measured in constant prices;

$$(2) \quad M = a_1C + a_2I + a_3X + a_4G,$$

an important equation with different "marginal propensities to import" for the separate components of P ;

$$(3) \quad C = bP,$$

a consumption function;

$$(4) \quad E = cP,$$

an equation describing employment as a function of production; and

$$(5) \quad B = p_xX - p_MM,$$

an equation describing the balance of payments as the value of exports minus the value of imports, p_x and p_M being price indices of exports and imports, respectively. For simplicity's sake I suppose these price indices (measured with base unity in the present year, say) to be given and constant.

The equations (1)–(5) may be regarded as a complete model in five endogenous variables P , C , M , E , B and three exogenous variables I , X , G . Under the plausible assumption $b \neq 1$ we can write each endogenous variable as a reduced-form function of the exogenous variables. In particular:

$$(6) \quad E = \frac{c}{1-b}G + \left[\frac{c}{1-b} (I + X) \right]$$

$$(7) \quad B = - \left(\frac{a_1b}{1-b} + a_4 \right) G - \left[\left(\frac{a_1b}{1-b} + a_2 \right) p_M I \right. \\ \left. + \left\{ \left(\frac{a_1b}{1-b} + a_3 \right) p_M - p_x \right\} X \right].$$

The argument is now as follows. Suppose our policy-maker is interested in next year's level of employment and balance of payments. According to (6) and (7), both (unknown) quantities are determined by next year's volume of government expenditure, on one hand, and by next year's investment and export volume, on the other hand. Out of

these, the former quantity can be controlled whereas the latter cannot. It is necessary, therefore, to make a prediction of next year's I and X such that, when this forecast is combined with knowledge (or estimates) of the parameters of the system (1)—(5), the terms in square brackets of (6) and (7) are known. They are "known," of course, only in the limited sense that a prediction is available, and this imperfect knowledge implies automatically the possibility of forecasting errors. For the moment, however, I prefer to leave this aspect aside.

After these operations, both E and B have become linear functions of G only, the terms between square brackets being "constant terms." When eliminating G , a linear equation between E and B results. This is the constraint which the policy-maker has to face. This constraint is represented by a straight line in an E, B -diagram, the slope of which is negative under the plausible assumptions $a_1, a_2, c > 0$ and $0 < b < 1$ [the coefficients of G in (6) and (7) have then opposite signs]. Clearly, the policy-maker can reach any point of this line by a suitable choice of G . When indifference curves of the well-known type for E and B exist, the "best" choice is that of the point where an indifference curve is tangent to the straight line.

However, I am proceeding at present beyond Tinbergen's approach, for the idea of a best choice is that of optimization, not that of accepting target values. Moreover, contrary to Tinbergen's "normal case," we do not have an equality of the numbers of target variables (E and B) and of controlled variables (G). Hence a pair of target values E, B cannot be imposed by the policy-maker, unless the values happen to satisfy the constraint. But this constraint is not exactly known: we have to predict next year's investment and exports, and this gives rise to forecasting errors; we have to use estimates of the parameters, and this implies sampling errors; and we have disturbances in the equations, which are neglected here. In the behavior equations (2), (3), and (4), no disturbances are introduced, but there is no reason for doing so, except for that of simplicity. If we had introduced disturbances, a linear combination of them would appear in the reduced-form relations (6) and (7).

V. Further Analysis

The above example, especially in its optimization form, suggests a very close formal relationship to the classical theory of consumer's demand: both there and in the example the derivation of the best choice of actions is based upon a linear constraint and its point of tangency with one of the indifference curves or surfaces. Actually, we might expect certain elements of classical consumer's theory to be even more valuable for our present purposes than for consumer analysis itself, for

two distinct reasons: first, because the policy-makers we have in mind, like government officials, entrepreneurs, labor union officials, etc., are usually more "rational" than unsophisticated consumers, so that the existence of stable indifference curves seems to be a more realistic assumption for our present case; second, because consumer theory is not very realistic as to the problem of large, indivisible units of some (especially durable) commodities, whereas in the above example—and many others—this problem does not play a significant role in view of the almost perfect divisibility of variables like employment and balance of payments. There are, however, certain differences between the type of analysis we have to perform in this case and classical consumer theory.

First, contrary to the sole budget restriction in consumer's theory, it is not generally true for our present problem that the number of constraints is only one. It was only one in the example, but some minor modifications are sufficient in order to raise this to two. Suppose that our policy-maker does not consider G solely as an instrument by which he can influence E and B , but that he appraises G in its own right because of the immediate welfare implications of changes in the volume of government expenditure (on schools, highways, salaries, etc.). In that case we should replace the indifference curves in the E, B -plane by indifference surfaces in the E, B, G -space. For our present purposes the most important aspect is that the single constraint in the E, B -plane is replaced by the two separate constraints, each being represented by a two-dimensional plane. Another important aspect of this modification of the example is the dual nature which controlled variables may have and generally have: they serve not only as instruments in adapting noncontrolled variables, but are appraised in their own right as well. Sometimes the latter aspect is considered much more important, so that the accompanying changes in noncontrolled variables are merely regarded as (fortunate or unfortunate) by-products. An example is the problem of raising the compulsory minimum school-leaving age. In most cases the proposals of such measures are based on psychological, educational, and social motives, yet economic effects may be quite substantial. An analysis of such effects in the Netherlands was made by W. H. Somermeijer, of the Central Bureau of Statistics, in a paper, "On Economic Consequences of Extending Compulsory Education," read at the Hindsgavl Meeting of the International Association for Research in Income and Wealth in 1955.

A second difference with the traditional theory of consumer demand is the aforementioned fact that the constraints are usually stochastic and not exactly known. A third is that, contrary to the linear budget restriction of consumer's demand theory, the constraints which we

have to face are not necessarily linear; and even if they are linear, the multiplicative coefficients of the equations making up the constraints do not necessarily obey the simple sign rule of the consumer's budget restriction. For the coefficients of the latter restriction are simply the prices, which are never negative and usually positive; and compare this with the unequal signs of the G -coefficients in (6) and (7). Similarly, when using a utility function in order to describe the policy-maker's preferences, the marginal utilities do not necessarily obey the simple sign rule which is assumed in consumer theory. There the marginal utilities are all positive (or zero, as in the case of saturation), but for our policy-maker the sign is not definite. An example: If employment is among a government policy-maker's (noncontrolled) variables, an increase in this variable will usually be positively valued; hence we might speak of a positive marginal utility. But it is equally well imaginable that unemployment is one of the variables, and the resulting negative marginal utility is a proof of the indefiniteness. This example may seem almost trivial; but it is nevertheless conclusive.

A further analysis (see my forthcoming volume, *Forecasts and Economic Policy*) shows the following:

1. Under certain assumptions, a generalization of the theory of consumer's demand in the policy-maker's direction is possible, and concepts of inferiority, substitution, and complementarity for the policy-maker's variables have a definite meaning and give a useful insight into the choice mechanism.

2. Under certain assumptions, the policy-maker's optimal decisions are not affected if the disturbances are replaced by their mean values. Under alternative assumptions, a "certainty bias" is implied by this replacement, and it appears to be possible to make certain statements about this bias.

3. Under certain assumptions, it is possible to give a numerical expression for the loss of welfare due to errors in the model used. This opens in principle the road to a rational decision as to the amount of effort to be spent on different types of model refinements.

ECONOMIC THINKING AND ITS APPLICATION AND METHODOLOGY IN EASTERN EUROPE OUTSIDE OF SOVIET RUSSIA*

By NICOLAS SPULBER
Indiana University

This paper attempts to discuss the basic changes in economic thinking, in its practice and methodology, over the last decade (1945-55) in Poland, Czechoslovakia, Hungary, Rumania, and Bulgaria. The term "Eastern Europe outside of Russia" is hence applied in this context to the countries having presently a centralized planning system; it excludes Yugoslavia, which will be dealt with in the next paper.

Given the enormous complexity of the subject, we propose to limit the discussion on economic thinking, practice, and methodology to planning and to some of its implications particularly for trade relations among the planned economies.

Before entering into the examination of the topic as determined above, a preliminary remark appears in order concerning the sources. It is erroneously assumed that no information whatsoever is available concerning these countries. Actually, a distinction should be made between the amount and the nature of this information. A large body of information is available from each of these countries. Each of the Central Planning Commissions, the Central Statistical Offices, the Economic Sections of the Academies of Science and the Societies of Economists publish in each of these countries an economic periodical in their respective language. However, these discussions are cast in a political-economic framework which often prevents a clear demarcation of our subject.

I

The first postwar decade can be divided into the following periods: (1) 1944-45 to end of 1948, which corresponds broadly with the period of reconstruction; (2) turn of 1949 to end of 1953, which corresponds broadly with the period of the first plans of development; (3) turn of 1954 up to end of 1955, which corresponds with a period of readjustment (opened by a "new course" and closed by the modification of this "new course").¹ After this period, the area as a whole is scheduled

* I am indebted to Professors E. McKinley and F. Gehrels for their helpful criticisms of an earlier draft of this paper.

¹ The indicated periods were broadly overlapping. The reconstruction period might be considered as concluded at the end of 1948; however, decisive changes occurred throughout 1948 and even before—e.g., over-all nationalizations in Bulgaria, at the close of 1947;

to enter into a second quinquennium starting in January, 1956, and extending up to the end of 1960.

The opening of the period 1945-48 was marked by large nationalizations in the allied countries (Czechoslovakia and Poland) in the spheres of industry, banking, insurance, transport, and foreign trade. Early in 1946, most of the gainfully employed in industry—namely, 75 per cent in Czechoslovakia and some 84 per cent in Poland—were absorbed into the newly expanded state sector. In the exenemy countries (Hungary, Rumania, and Bulgaria), Hungary alone engaged in 1945 in outright nationalizations but then only of the coal mines and of power plants; most of the large plants of these countries were placed, for their part, in government custody, while an inventory was established of the so-called "German assets," which were to be transferred now to the ownership of the Soviet Union.

Both in the former allied countries, where the state had taken over the "economic heights," as well as in the exenemy countries, where the process of nationalization had not yet started to unfold, the idea of economic planning appeared generally as the necessary solution: to pull the economy out of the chaos; to allocate reasonably the available limited resources; to start anew the process of production; to deliver the required reparations (an obligation only of the exenemy countries); to carry out the task of reconstruction; i.e., to achieve at a rapid pace an increase in the aggregate national product. However, together with these objectives and indissolubly linked to them, a political and social objective was stressed in the area; namely, the objective of changing the then prevailing social structure through the intensive industrialization of each country, and particularly of the more backward regions of each.

Except for Czechoslovakia and Bulgaria, which had suffered less than the neighboring countries, the area as a whole was entering into the postwar period with badly shattered, severely damaged economies, some of which, like Poland, were facing complicated problems of adjustment and territorial integration or, like Hungary and Rumania, were mortgaged by heavy and multiple international obligations. Any attempt at economic co-ordination had, moreover, to take into account a complex interweaving of six structures of ownership: state nationalized enterprises, joint state-private enterprises, joint state-Soviet companies,

stepped-up nationalizations in Czechoslovakia, after the February, 1948, *coup d'état*, etc. The first planned quinquennium can be considered as concluded at the close of 1953, even though some plans were declared completed in 1952 (e.g., Bulgaria) or were to be completed in 1954 (Hungary) or 1955 (Poland and Rumania); the reason for choosing 1953 as the closing date of the first period of development is prompted by the fact that broad changes were envisaged at that moment in the area as a whole, in the sphere of the allocation of investments.

Soviet and other foreign companies, capitalist companies of nationals, and private small-scale ownership. Finally, three basic types of organization of production were confronting one another: state (socialist), predominant in industry; private (capitalist), essentially in the spheres of distribution and partially also in industry; and "small-commodity production," predominant in agriculture and in crafts.

Planning started, by and large, with the setting of goals for basic industries, then by the establishment of plans for both production and employment for some industries, then by the development also of sector plans—e.g., for transportation—and, finally, with the broad integration, in an over-all reconstruction plan, of the sectional plans. Technical knowledge necessary for the elaboration of these first plans was extremely limited. There existed at the time complete uncertainty, so far as certain sectors of the economy were concerned (such as the crafts, the sown areas or the livestock population in agriculture, etc.), as to ways of determining the productive capacity of certain industries or their rates of utilization, etc. Planning represented, in most of these countries, first the organization of a given output in the nationalized enterprises, and then the establishment in the other spheres of a system of controls which was to expand constantly.

The political climate of the early postwar years affected to a large extent the premises and the concrete drafting of the plans. Thus, for instance, in Czechoslovakia the plan was drawn on the basis of systematic compromises between the representatives of the existing political parties. In Poland, the draft was established by the Central Planning Commission; that is, mostly by specialists. In Hungary, the plan was drawn on the basis of a general compromise between a socialist draft (composed with the expert advice of a Western economist, Nicholas Kaldor) and the Communist draft (established with the advice of the Soviet economist of Hungarian origin, Eugene Varga). The two drafts could be merged "without great difficulty as the Communist plan was also adapted in its structure to the system of mixed economy." (G. Kemény, *Economic Planning in Hungary 1947-1949*, Royal Institute of International Affairs, 1952, page 24.)

The basic macroeconomic decision of the plan—namely, the fraction of the national income to be invested—was generally determined "by a kind of compromise of the objective of achieving the greatest possible rate of industrialization and the objective of achieving it at a not too great sacrifice in the development of the production of consumers' goods." (O. Lange, "The Practice of Economic Planning and the Optimum Allocation of Resources," *Econometrica*, September, 1947, Supplement, July, 1949.) By the prewar standards, the rate of investment was, however, quite high: around 10 per cent in the countries

affected by reparations (Hungary and Bulgaria) and around 20 per cent in the others (Czechoslovakia and Poland). (These figures relate gross investment to net national income; hence they are somewhat inflated.)

The microeconomic decisions—i.e., what goods and what quantities of them were to be produced—were broadly determined, for their part, by the general pursuit of the task of restoration of prewar facilities, combined with the selected objectives of expansion of certain key industries. The concrete solutions concerning the ratios between restoration and expansion, which would determine the levels of output of different industries, the relation of industrial to agricultural output, and so on, were reached empirically without much concern for theoretical criteria of optimum allocation of resources.

At the time—in 1946 and up to the autumn of 1947—such problems could be, and were, debated openly in the specialized economic literature of the countries of the area. Thus in Poland, Professor Edward Lipinski, discussing the role of economics and planning, stressed the fact that the basic role of the former consisted in “the management of the means of production so as to *maximize* the results.” As for planning, he added, if the postulated ends are determined by the will of the planner, these ends cannot be carried out if they are not adapted to the means; the latter are, in turn, determined by such interrelated magnitudes as prices, wages, cost of production, which are not “arbitrary magnitudes dependent on the will and the arbitrary decisions of the planner.”² Professor Oskar Lange clearly deplored the fact that the microeconomic choices had been crudely and empirically determined without any resort to economic analysis. While affirming that marginal analysis still required “much further elaboration in terms more operational than at present, to make it serve as a basis for practical decisions,” he was reasoning in the familiar framework of welfare economics and of his earlier *Economic Theory of Socialism* and was notably affirming that the problem of more “refined choices [in view of an optimum allocation of resources] will increase the further we get away from the stage of reconstruction and enter into the stage of expansion. And in this case . . . the problem of a refinement of the method of analysis and of the criteria used for economic planning will be needed in order to solve the practical problems of economic planning.” (*Op. cit.*, pages 166 and 170.)

Other problems, of both a theoretical and practical import, such as the role of the market and its place in planning,³ the pattern of invest-

² E. Lipinski, “Uwagi o Zadaniach Ekonomii” (“Remarks on the Tasks of Economics”), *Ekonomista* (Warsaw), 1947, p. 11 ff.

³ For a discussion of these problems in Poland, see W. J. Stankiewicz and J. M. Montias, *Institutional Changes in the Postwar Economy of Poland* (Mid-European Studies Center, New York, 1955), pp. 28-30.

ment and the concrete connection between the financial means and the planned ends, the problems of cost accounting, etc., started then to be explored in the literature. It should be noted that the most outstanding books of the time, namely, some comprehensive studies in the field of national income and product, notably in Czechoslovakia⁴ and Bulgaria,⁵ were computed on the basis of the Western methods of accounting; i.e., including all goods and services produced. It is interesting to observe that, in fact, in all the countries of the area, all the computations concerning income and the respective shares of investment and consumption underlying the reconstruction plans were based on the same Western methods.⁶

II

Very sharp changes started to unfold by the close of 1947, the turn of 1948, in the area as a whole, both in the political and economic fields, due to a conjunction of political and economic factors (such as the organization of the Cominform, the "compartmentalization" of East and West, the liquidation of the "bourgeois" political parties, the prevalence of the Communist forces in each East European country, etc.). The process of nationalizations outside agriculture was rapidly extended in the former allied countries (in Czechoslovakia after the February, 1948, *coup d'état*) and was effected often by one or two all-embracing measures in the exenemy group.⁷ The completion of the nationalization processes in the area reduced both the forms of ownership and the modes of production in the economies considered. In the former allied group, the enormously expanded socialist ownership was facing now, on the one hand, a sharply reduced capitalist ownership and, on the other hand, an important mass of small private ownership in agriculture. In the exenemy group, those three types of ownership were coexisting with two other important forms: the Soviet companies and the joint companies with Soviet participation. The whole

⁴ M. Stadnik; notably *Czechoslovenský Národní Duchod a Methody Jeho Zjisti* ("The Czechoslovak National Income and Methods of its Computation," Prague, 1947).

⁵ A. Chakalov, *Natsionalniat Dokhod i Raskhod na Bălgaria 1924-1945 god* ("National Income and Outlay of Bulgaria," Sofia, 1945); P. Kiranov, *Natsionalniat Dokhod na Bălgaria 1930-1944-1945 god* ("National Income of Bulgaria," Sofia, 1946). A. Kemilev, *Natsionalniat Dokhod na Bălgaria 1936-1945* ("National Income of Bulgaria"), Vărkhovnata Stopanska Kamara (Sofia, 1947).

⁶ Cf. for Poland, B. Minc, "Dochod Narodowy i Jego Podzial" ("National Income and Its Division"), in *O Planie Trzyletnim* ("On the Three Year Plan," Warsaw, 1949), p. 155 ff., and by the same author, *Zagadnienia Dochodu Narodowego* ("Problems of National Income," Warsaw, 1951), p. 256 ff. Cf. for Hungary, *Hungary's Three Year Plan* (published by the *Hungarian Bulletin*, Budapest, 1947), pp. 27-28.

⁷ It should be noted that these extensions were not implicit in the plans; thus Kemény observes concerning Hungary: "The decision to incorporate those branches of the economy into the publicly-owned section did not result from any investigation of economic expediency; it was taken in the political sphere. The requirements of effective planning supplied a convenient argument in support of resolutions already taken." (*Op. cit.*, page 17.)

economy was now virtually organized along two basic lines of modes of production: state (socialist) and private (small commodity). The capitalist form of production—meaning in this context private production with hired labor—maintained its existence only in exceptional cases here and there, notably in agriculture.

Planning under these conditions started to be patterned closely after the Soviet five-year plans. All the countries of the area established long-term plans of industrialization and development, generally of five-year duration (Poland alone adopted a plan for six years), to start in 1949 (except for Rumania whose long-term plan started only at the turn of 1951). The published plans represented only the general framework for the period considered. Yearly plans (operational plans) were to be completed subsequently and fitted, at the appropriate time, into this general "perspective" plan.

The aims of all these plans have been, first, the establishment of an investment program for the various sectors of the economy for the period considered, and, secondly, the fixing of output targets for the end of that period. The basic macroeconomic decision of the plan, that is, the decision concerning the share of income to be invested ("accumulated"), was determined now by the twin objectives of rapid industrialization and of "establishing the basis of socialism" in each of these countries.

The share of gross investment in net material product (i.e., national income excluding "nonproductive" services) was increased to around 25 per cent, with industry and building receiving the stepped-up share of over 40 to 50 per cent of the total. Following the Soviet model, all the plans placed emphasis first on the machine tools and metal-working industries, then on the broad group of heavy industries, and then on industry as a whole as contrasted with agriculture. All set as goals the enlargement of the national industrialization base by increasing rapidly the output of electricity, coal, iron, and steel. All underlined, by their emphasis on engineering and on construction materials, a systematic pursuit of an increase in their capital formation and of enlargement of the domestic capacity of production. Since each one of these countries started to aim at "all-round" development, each one of them stressed the necessity of developing every type of national resource—even if the latter had previously appeared completely cost-prohibitive. Finally, centered on each national unit, each plan was clearly drawn up independently and each implied, in this specific phase of development, only marginal, if any, co-ordination among themselves as to the level of output and as to foreign trade.

The implementation of the all-round, long-term plans and the preparation of more and more complex operation plans fitting into this gen-

eral scheme, became in each country the central preoccupation of the newly consolidated Communist regimes.

The previous economic debates over points at variance with the Marxist approach were rejected—often under the form of “auto-critiques”—as “subjectivist and formalistic.”⁸ It was stated in Poland, for example, that “Keynesian economics and its variants” had dominated economic thinking after the war and that the time had come to reject these “models without value.”⁹ In the field of planning the previous concern for the amelioration of the condition of the consumer was rejected as completely erroneous and the chief planner of Poland, Hilary Minc, enjoined the economists “to reject the fallacious theory of the primacy of the plan of consumption in planning and to place the latter on the basis of the plan of production.”¹⁰ The establishment of a close connection between the production plan and the method of national income accounting¹¹ led to the rejection of all the previously existing works and methodological approaches to income accounting; namely, in Poland, in Czechoslovakia, in Hungary, and in Bulgaria.¹² However, after discarding the previous works, only Poland published a systematic and documented study of income and that for 1947 only. While a substantial number of books and articles have been published in the area on the Marxian methodology of computing income and on

⁸ Thus Professor Lipinski rejects his previous opinions (quoted above in note 2) as expressions of “subjectivism and voluntarism”! According to his autocritique, he notes, following Stalin, that “the economic process is performed independently of the will of the people” who can but try to put to use the existing “objective laws.” Cf. E. Lipinski, “Przedmiot Ekonomiki Politycznej i Obiektywny Charakter Praw Ekonomicznych” (“The Subject of Political Economy and the Objective Character of Economic Laws”), *Ekonomista*, 1953, pages 43-55.

⁹ Cf. *Stan i Zadania Nauk Ekonomicznych w Polsce*, Materiały Sekcji Nauk Ekonomicznych, I Kongresu Nauki Polskiej (“Situation and Task of the Economic Science in Poland, Materials of the Section of Economic Science, 1st Congress of Polish Scientists,” Warsaw, 1951), pp. 24 ff.

¹⁰ H. Minc, “O Właściwe Metody Planowania w Polsce” (“Proper Methods of Planning in Poland”), *Nowe Drogi*, Warsaw, 1948, p. 37, and B. Minc, *Zagadnienia*, op. cit., p. 261.

¹¹ As in the Soviet planning, in Eastern Europe the gross yearly product is computed as the sum of the gross output—including duplications—in all the sectors of material production. The total is obtained by multiplying quantities produced times market prices. The gross output is broken down into: (1) cost of production (*c*)—i.e., cost of materials and fuel as well as depreciation allowances; (2) wage bill and contribution to social security (*v*); “surplus value” (*m*) absorbed by the state in the form of the turnover tax, and by the enterprises as “profit.” The total $c + v + m$, a key element in planning the material balances, is of little use as a measurement of the performance of the economy from year to year, since it disregards the fact that certain outputs of an industry are inputs of another. From this total, net material product is obtained by the elimination of duplications and is given as equal to $v + m$. On the utilization of the global product data, see notably B. Minc, “Program Reprodukcyj Narodowego Planu Gospodarczego” (“The Program of Reproduction of the National Economic Plan”), *Gospodarka Planowa*, Warsaw, 1952, pp. 11 ff.

¹² The most elaborate and interesting pro and con discussion on this score was held by the Bulgarian Statistical Society in December, 1947. Cf: *Opredeliane i Planirane na Narodniia Dokhod* (“Determining and Planning National Income”) *Statistika* (Sofia) Year VIII, No. 1-2, 1948, p. 3-66.

its connection with "enlarged reproduction," little has been provided to indicate what the officially released percentages and indices concretely mean as far as, for instance, the exact coverage of private and social consumption and their exact relation to "accumulation." The releasing of the data on income follows also the Soviet pattern: no income data are released in current prices; the nexus between the released income data in constant prewar (or sometimes plan prices) and the other data available in current prices is missing; no concrete figures are available on personal consumption, etc.

The expected progress in the domain of planned microeconomic choices failed to materialize. The resort to any systematic theoretical approach—in lieu of the successive empirical solution of the priorities set by the plans—has been denounced, in Poland for instance, in terms clearly alluding to some of the previous Lange-type suggestions. Thus the alleged theories of "some economists" that "the methods of bourgeois economics were taking full significance in the planned economies" were severely condemned as "attempts to jump on new positions when the old ones [i.e., the "defense of capitalism"] could no longer be maintained." (*Stan i Zadania Nauk Ekonomicznych w Polsce, op. cit.*, page 25.) However, it is now openly admitted that, lacking any reliable criteria, investment costs have been too high, unnecessary costs have been involved in industrial investment, insufficient modernization of existing facilities has occurred while investment in new establishments was planned on a too large scale, etc. (T. Lychowski, *Ten Years of People's Poland, General Premises of Economic Policy*, Warsaw, 1955, page 60.)

The concrete implementation of operational plans brought, for its part, a substantial assimilation of the Soviet experience, notably in the fields of the "material balances" and of the concrete establishment of the matrices of interindustry relations. As far as the money flows are concerned, not all the desired balances were drawn even on a limited basis: thus, for instance, the balances of revenue and expenditure of the population—a fundamental link in planning—rest on highly uncertain elements such as the estimated production, estimated consumption, and estimated distribution of the output of hundreds of thousands of small peasant farms.¹³

III

The broad changes envisaged in the sphere of the allocation of investments—especially as between heavy industry and light industry and as between industry as a whole and agriculture—from the middle of 1953 on, i.e., at the opening of the period called "the new course,"

¹³ T. Dietrich, "Some Remarks on Economic Accounting and the Law of Value" (English translation from *Ekonomista*, 1950), in *International Economic Papers*, No. 2, 1952, p. 81.

put in fact under discussion not only the actual speed of industrialization in this or that country but the very relevance of the Soviet planning model and of its type of priorities for other economies with a different budget of resources. The most significant efforts in the direction of the reallocation of investments took place in Hungary, due both to the severe bottlenecks provoked by the lagging of agriculture in respect to the needs of the stepped-up industrialization and urbanization and to the complexity of the collectivization processes initiated in agriculture after 1949. The new course proposed to revise substantially the rates of investment and consumption; viz., lowering the former from 25 to 18 per cent and increasing personal consumption from 58 to 70 per cent of the net material product. It indicated further that the excessive effort for industrialization had been carried out without due consideration of cost in domestic resources and in the living standard of the masses. As a consequence, the many objectives of the new phase were indicated to be (1) not a further increase in the heavy industrial output but better allocation of this output—one would be tempted to say, so as to maximize the results; (2) not output "at any price" in the heavy industries but a better balanced output in the economy as a whole under the limitation of its own resources; (3) not a narrowing down of the peasant market but an increase of its role both in order to encourage agricultural production and to insure the supply of the towns.¹⁴ Thus the economist Zoltan Vas wrote, in *Szabad Nep* ("Free People," October 27, 1954), that the main task was now "to create a right balance between industry and agriculture. In order to attain this during the coming years the task will not be to increase production on a large scale, especially for coal, crude iron and rolled steel goods, *but to utilize it economically.*" And he added that "industrialization shall not mean one-sided employment at any price of the metallurgical and the engineering industries, but a program aiming to develop the entire industry in the right proportion and at the right rate."

Actually, a little over a year after it started, the new course was substantially modified. The switching over to a completely new pattern of investment proved too costly; after a series of political changes, the new economic policy was narrowed down to only a modest increase in the share of investment devoted to agriculture, while the basic ratio of investment to personal consumption was again increased so as to approach closely the pre-new course level. The new planned quinquenniums to start simultaneously in the area as a whole (including Soviet Russia but excluding Bulgaria) on January, 1956, and to extend up to the close of 1960 remain thus basically similar, as far as the in-

¹⁴ Kalman Szabo, "The Role of the Market in the New Period" (English translation from *Társadalmi Szemle* ["Social Review"], Budapest, August-September, 1954, Mid-European Studies Center.

vestment share in income and its allocation are concerned, to the first planned quinquenniums. A more complete view of the foundations of the new plans can be gained by considering now the whole problem of planning from the angle of foreign trade.

IV

The appearance of a series of planned economies and the intensifications of trade relations among them have created some decisive problems concerning their respective planning. During the reconstruction period and especially toward the close of 1947 and turn of 1948, the substantial fall in the trade between these economies and the West facilitated the creation, on the intraplanned economies market, of monopoly positions and reinforced the bargaining strength of the suppliers of the key commodities denied by the West. Some of the main results of these facts were a high variability in the price of the same item charged to one or the other East European country and the displacement—via the deterioration in the terms of trade or via changes in the structure of trade—of the output plans of the “weaker links” of the East European market.

The break of Yugoslavia, among other factors, prompted a serious re-examination by the participating countries of the conditions of trade prevailing in the East European market. As a result of this re-examination, two basic groups of measures were devised—one in respect to prices and the second in respect to mutual co-operation.

Before discussing these measures and their impact on planning, let us consider rapidly the mechanism of trade and trade settlements on this market. The trade is carried, on the basis of plans of reciprocal deliveries through bilateral channels. For any binary trade contract, a clearing account is established between the partners. The accounts are balanced without resorting to money transfers: effectively, a payments agreement, accompanying the trade agreement, fixes the term during which the passive balance will be covered by the sending of additional commodities, at the prices established at the signature of the contract. In the balance of payment, the noncommodity items have a limited significance. (They cover essentially the expenditure abroad of various delegations and sometimes the expenses incurred by one or other of the binary participants for the drawing of certain technical projects.) The clearing accounts, carried up to 1948 in dollars, have been established since then in roubles. The rouble is, in this case, only a book-keeping unit.

The new measures that evolved relative to prices can be summarized as follows: (1) prices are established by mutual consent; (2) prices are kept constant for at least one year and in the majority of cases

for a period of years, covering a long-term contract (usually of five years' duration); (3) a unique price is established by a supplier for the commodity sold in this market: in any binary trade contract, it will be kept the same by the supplier for any other trade contract which he might sign in this market (except for small variations due to transport costs). The establishment of prices by mutual consent implies the possibility of taking as base of reference some price other than the international price (the latter were the standard prices up to 1948), notably for the commodities which cannot be obtained from a source outside this market. Stability of prices and the exclusion of multiple prices for the same commodity—qualified as the specific "laws" of this "second world market"—aim evidently, first, to facilitate long-term planning; secondly, to avoid price inequalities in any of the binary contracts. It is stated on the theoretical plane that the "circulation of commodities on the new world market remains subject to the law of value but the activity of the latter is limited and its regulatory role is being exercised only in given limits."¹⁵

It should be noted that if the price secured from a supplier by any given buying country is lower than the one fixed by the supplier under any previous binary contract for the same commodity, the supplier agrees to revise all previous contracts and to reduce the previous price. The measure is, finally, not at all a protection against a powerful purchaser since, in principle, the latter can lower the price when it signs its contract; the only result is, hence, that weaker purchasers get the same advantage at the expense of the supplier.

In respect to mutual co-operation a special organization was set up in 1949—the Council for Economic Mutual Assistance—in which all the East European countries, including the Soviet Union, participate. CEMA facilitated the exchange of economic experience, the signing of technical assistance agreements, the preparation of plans for reciprocal trade deliveries, and also the establishment of a limited co-ordination at the level of planning of the output of certain commodities; e.g., the production by each of the CEMA partners of only specified types of rolled steel products (e.g., heavy sections) and of certain machine tools.

Let us consider now the relation of prices to cost and the possible impact of CEMA on planning.

Some economists suggested during the new course period the replacement of the basic principle prevailing in the planning of foreign trade—namely, that "the output plan commands the dynamics of imports,

¹⁵ M. Horovit, "Despre Decontările Internaționale și Relațiile de Credit Dintre Țările Lagărului Socialist" ("On International Payments and the Credit Relations Among the Countries of the Socialist Camp"), *Probleme Economice* (Bucharest), July, 1954, pp. 103 ff.

and that both condition the dynamics of exports"—by a closer consideration of the relation of prices to costs. They condemned the prevailing system of planning of foreign trade as conducive to autarchy, and suggested that the starting point in this planning should be the needs of the other socialist countries. Only after working out the most favorable export and import plan—on the basis of the ratio of home productivity to world productivity for each commodity considered—should an output plan taking into account the plan of foreign trade be drawn up.¹⁶ These economists suggested the rejection of the prevailing criterion of "successful" foreign trade; namely, the obtaining of net earnings in foreign exchange such as to cover import needs and to obtain a surplus. They proposed instead consideration of comparative advantage, even though they proposed that the latter should be limited to the "second world market" only.

Ultimately, the previous system was not discarded, but some of the new suggestions have been adopted and combined with it. In the drawing up of each of the new five-year plans, account has been taken of the "needs of the other East European countries" and of each one's capacity of developing under the most favorable conditions of "profitability" certain branches of heavy industry. But each of the countries of the area has continued, nonetheless, to consider as indispensable the building of its own "socialist base," i.e., the development following the Soviet model, by each its own heavy industry. Thus the Rumanian chief planner, Miron Constantinescu, notes that, even though account must be taken in the new plans of the foreign trade plans of the other "friendly countries," nevertheless, "the all round development of the machine-building industry is a major necessity for *all the countries*. Without this, it is impossible to achieve technical progress . . . [Lenin] developed the Marxist tenet that accumulation in department I [production of the means of production] is a factor making for the proportionate development of these two departments I and II [i.e., production and consumption goods, respectively] and consequently department I must play the leading role in extended reproduction."¹⁷ Thus,

¹⁶ T. Liska and A. Máriás, "A Gazdaságosság és a Nemzetközi Munkamegosztás" ("Best Returns in the International Division of Labor"), *Közgazdasági Szemle* ("Review of Political Economy"), 1954, pp. 75 ff.

¹⁷ M. Constantinescu: On the Road of Building Socialism, Some Problems of Economic Development in Rumania in the Light of Economic Tasks of the People's Democracies, *For a Lasting Peace, for a People's Democracy!* Bucharest, September 9, 1955. This implies the achievement in each economy of the so-called basic proportions which according to Marx condition the "simple" and the "enlarged reproduction." Using the same symbols as in note 11 above, the equations of the Marxian model can be written as follows: 1) $I(v + m) = IIc$; 2) $I(c + v + m) = Ic + IIc$; 3) $II(c + v + m) = I(v + m) + II(v + m)$. The "normal" enlarged reproduction obtains for its part when $I(v + m + m, v) = II(c + m, c)$. (See, for instance, A. Orthaber, "Séma Vrednosnih bilansa narodne Privrede" "Outline of the Income Flow Balances of the National Economy," *Statisticka Revija*, December, 1954, pp. 291 ff.)

the "coordination in accordance with the principles of CEMA" will eventually lead to new agreements facilitating the larger development in certain countries of the output of those branches of heavy industry to which they are best suited; e.g., coal and some branches of chemistry for Poland, heavy machinery for Czechoslovakia, aluminum and machine-tools manufacturing for Hungary, and so on. However, the dogmatic adherence to the Marxian scheme of "enlarged reproduction" and the mechanical adoption of the Soviet planning model seem to prevent, for the foreseeable future, any broad and systematic division of labor on the so-called "second world market."

Thus, the co-operation with Russia and with the new "friendly countries" continues to be conceived not on the basis of extensive plan co-ordination but on the basis of extensive trade relations—and this only up to a point because of the theories indicated above. Some East European economists believed, during the new course, that the existing bilateral system would be discarded. Thus Professor Lange stated that "the full socialist development of a world market, requires not only bilateral agreements, but the coordination of trade and co-ordination of plans of production between all the countries of the socialist camp."¹⁸ It would seem, however, that Professor Lange again overstated himself and overlooked the inherent limitations placed by the official dogma of industrialization, this time notably in respect to the theory of the proper sources of an enlarged reproduction.

¹⁸ O. Lange: "Rozpad Jednolitego Rynku Światowego i Ukształtowanie się Dwóch Równoległych Rynków w Gospodarce Światowej" ("Disintegration of the Single World Market and the Formation of Two Parallel Markets in the World Economy"), *Ekonomista*, 1953, pp. 147-148.

POSTWAR CHANGES IN THE YUGOSLAV ECONOMIC SYSTEM AND METHODS OF PLANNING

By THAD P. ALTON

Washington, D.C.

Within the wide range of possible subjects, this paper proposes to discuss postwar economic thinking as reflected in changes in the economic system and methods of planning.

Two major periods can be distinguished in postwar Yugoslav economic history. The first so-called "administrative period" in the direction of the economy extends roughly up to 1950, and the second, the period of the "new economic system," extends from 1950 to the present. Soviet ideology and practice guided the Yugoslav authorities in the first period, but following their break with the Cominform in 1948 the Yugoslavs had fewer ideological restraints in seeking solutions to economic problems. In this respect they differed from the satellites in Eastern Europe, for whom 1948 represented a quickened transition to the Soviet model. In both periods Yugoslav economic discussions have a highly operational character and are concerned primarily with elaboration of the basic decisions reached by the Communist Party or the government.

General Views on the Economic System. Upon taking over authority, the Yugoslav Communist government proceeded to establish a socialist economy on the Soviet model. To the capitalist properties confiscated by the Communist government during the war there were added by means of nationalization in 1946 and 1948 nearly all business enterprises in industry, trade, transportation, communications, and finance. In agriculture, where small peasant farms already predominated in terms of area cultivated, only the large estates were taken over for redistribution to individual peasants or to be held in the government's land fund for the subsequent creation of collective farms and state farms.

The Yugoslav official views reiterated the Marxist formulation that the state in the period of transition from capitalism to socialism should be a revolutionary dictatorship of the proletariat—a tool for the elimination of the *bourgeoisie* as a class. And that following such elimination, the state becomes unnecessary as a force above society and hence should wither away along with the passing of class contradictions. In contrast to the Soviet formulation, the current Yugoslav view as elaborated by Kardelj is that the state should gradually wither away beginning immediately upon the victory of the revolution.

Economic policy in the period up to 1950 was directed primarily toward twin goals: to replace private ownership and operation of means of production by social ownership and operation; and to achieve a rapid rate of economic growth by assigning overriding priority to expansion of producer goods industry. The official ideology denounced market established prices and prospects for profits as anachronisms belonging to the capitalist era and as unworthy guides to production decisions. Valuations of the planners replaced the preferences of consumers as determinants of production. Investment decisions were based not so much on profitability as on the planners' choice taking subjective account of needs for defense, economic self-sufficiency, and the ideological urge to achieve a rapid rate of industrial growth. Public revenues realized primarily by sales taxes on consumer goods and by profits on compulsory deliveries of agricultural products at low fixed prices provided the funds for the state investment program.

Beginning in 1950, economic enterprises were placed under the supervision of local governments, and workers' collectives were given a measure of participation in the management decisions. Central planning was reduced to setting the over-all goals of production and the basic distribution of the social product, allocating quotas of investment resources to branches of the economy, and establishing general regulatory provisions. Emphasis on heavy industry was reduced, and greater attention than in the past was given to agriculture and consumer goods industry.

Official statements represent the new economic system as a beginning in the growth of the commune and an instance of the withering away of the state. This thinking visualizes the local commune as a voluntary social unit and not a new aspect of the state.

A closer examination shows that much decentralization has occurred in matters of detail, but it reveals a continuing important role of the central authority in guiding economic activity. Moreover, the Communist Party on more than one occasion has indicated that it has no intention of giving up its political monopoly.

Economic Planning. Yugoslav economic planning up to 1950 was characterized by direct state management of the economy. Central plans decreed by the executive branch of the government set the detailed goals of material production, the program of investment, the distribution of labor, and the distribution of the final products and services. A financial plan reflected the process of production and distribution and served as a means of controlling the performance of the economy. On the organizational side of such a scheme of planning there was a hierarchy of planning commissions topped by the federal planning commission and a hierarchy of economic administration rising

from the production enterprises to the economic ministries of the federal government.

Yugoslav criticisms of this type of planning point to the fall in quality of production in the overemphasis given to meeting the quantitative goals of the plan, the poor assortment of products, faulty distribution of raw materials and intermediate products, inefficiency in use of factors of production, and failure to provide incentives to producers.

During 1950-55, economic planning became less administrative in character and more indirect and objective in its relation to economic enterprises and the population. The elaborate planning and administrative apparatus was replaced by a number of advisory bodies to the representative organs of government, and detailed planning yielded to the planning of the "basic proportions" of economic activity coupled with economic "instruments and measures" to bring these proportions to pass.

Essentially the basic proportions of the social plans in this period are concerned with determining the magnitude and structure of the national product and its distribution to final uses. The method for establishing the basic proportions uses physical and monetary balances which reconcile the requirements for resources with the means for meeting them. Thus physical balances are established for such items as transport services, electric energy, coal, steel, grain, and the most important final products. These balances help to identify needs for production, export, and import.

Monetary balances are concerned with the money flows associated with the planned volume of production and its final distribution. Among the more important of these balances are those reflecting the income and expenditure of the federal and local governments, the money income and the noncommodity expenditure of the population, the value of commodities available for sale and the funds available for their purchase, availability and requirements for credit, and receipts and payments in foreign transactions.

Such balances also were used in planning in the administrative period when their final expression resulted in a detailed production and distribution program for the enterprises. Their application after 1950, however, did not eventuate in specific goals for enterprises.

The 1953 federal social plan illustrates the transition to less centralized planning. It gave for each republic the national income by industrial origin and a breakdown of this income into the wage bill and the remainder comprising the so-called "accumulation and funds" destined to support investment and other collective expenditures. In addition the plan prescribed the minimum utilization of capacity of production by branches of the economy, the rates of accumulation and funds ex-

pressed as a multiple of the wage bill for each sector of production, and the basic investment program.

The minimum rates of utilization of capacity applied to branches of production and permitted some variation among enterprises so long as the average for the branch met the minimum goal. Although the plan prescribed the wage bill and its share in the net value added in production, it did not specify the number of employees. Enterprises could conserve labor in the interest of a higher average wage. They also could use their monopoly positions on the market for this purpose, in this case sharing the monopoly gain with the state through the rates governing accumulation and funds.

This scheme of planning was criticized for its inflationary tendencies and for the emphasis it placed on conserving physical labor without equivalent emphasis on other factors of production. Moreover, direct government allocation of the greater part of investment through the basic investment program was regarded as inefficient. These criticisms called for a still more decentralized scheme to promote efficiency in the use of all factors of production as evaluated by the market, without forsaking the government's role in guiding economic activity.

By 1955 the federal social plan had become more elaborate. Its goals covered the growth of basic industry and agriculture, the services of transportation and communication, foreign and domestic trade, and investment. Goals of production in the form of indexes were given for industry as a whole and its principal branches.

The instruments given in the 1955 plan to stimulate the achievement of the goals include provisions concerning rates of amortization, interest on fixed capital, interest on short-term credit, utilization of the general investment funds, and economic rents. Special provisions of the plan relate to the turnover tax, the federal tax on profits, taxation by republics, distribution of profits of enterprises remaining after meeting taxes, tax on agricultural income, and the federal budget and funds. Finally there are provisions for regulating foreign trade, schedules of wage rates, and authorization for the Federal Executive Council to establish maximum prices where shortages in supply or monopoly could lead to undesirable price rises. The market is expected to co-ordinate economic decision making subject to the restraints contained in these measures.

Fixed Capital and Investment. Investment during the administrative period for the most part was centrally planned as to specific types, locations, and magnitude. Direct interest-free grants from the state budget and the state amortization fund were the basic means of financing investment in the state-owned sector. Interest-bearing repayable loans were used in the co-operative and private sectors.

Criticisms of this investment procedure stressed its failure to take full account of all competing needs for investment resources, the relative lack of interest on the part of the investor in the completion of the state-prescribed investment program, and the resulting high cost and untimely completion of projects. Transition to a new, more objective procedure in which the market could act as a spur to efficiency in the allocation of investment resources was delayed pending the completion of projects begun under the old system.

Under the new system, payment in the form of interest is required for the use of capital. Investment resources formed from interest payments on fixed and working capital are divided by the social plan into quotas for the various branches of the economy. Within each branch quota, the banking system distributes the funds competitively among the investors according to their creditworthiness and their willingness to pay a rate of interest equal to or higher than the state-fixed minimum for the branch, which would equilibrate demand for credit with the resources available in the quota.

In addition, the state through its social plans directly grants funds for technological research, exploration for new mineral wealth, and construction of railroads, ports, and other objects of general economic significance. Moreover, the Executive Council of the federal government is authorized to offer special inducement to investment in sectors that are currently less profitable than the average. In providing that socialized enterprises should pay interest to the state on their fixed capital, the social plan specifies a basic rate of interest but allows lower rates as exceptions for those branches of production that the government seeks to expand. For example, in 1955 the basic rate was 6 per cent, but only 2 per cent was required for enterprises in the electric power industry, petroleum production, iron-ore mining, food processing, and transportation, and only 1 per cent in the construction materials industry. Thus it is clear that despite the substantial decentralization of decision making through the competitions among investors for investment resources within branches of production, the central authority still acts independently of the market in its quota allocations of funds, in setting minimum interest rates, and in direct administrative placement of investment.

Foreign Trade. Yugoslav foreign trade during the administrative period was conducted by centralized enterprises in accord with the import-export plans. The settlement of price differences between fixed domestic prices and variable foreign prices was accomplished by means of a price equalization fund for foreign trade, and foreign exchange was under exclusive control of state organs.

The new economic system abolished the rigid import-export plans and the system of foreign trade permits for separate transactions.

Foreign trade enterprises were given a measure of independence, and a greater number of enterprises were admitted to deal in their own behalf or to act as agents for others. A system of differential exchange rates implemented by import-export coefficients to be applied to prices of the various commodities entering foreign trade replaced the earlier import-export plans. Enterprises were permitted to retain a part of the foreign exchange they realized from exports, and a free market for foreign exchange was established at several centers in the country. Thus the new foreign trade procedure, though less centralized and more objective than its predecessor, still exhibits a high degree of state intervention.

Price Policies. Yugoslav planning up to 1951 regarded prices as servants of the central plan and not as market-determined parameters that could co-ordinate economic decision making. Accordingly, this period was characterized by administrative price fixing, various levels of prices for a given commodity depending on its purchasers, compulsory deliveries from peasants to the state, rationing, and direct allocations. Criticisms of this system point to its failure to satisfy consumer needs, surplus stocks of some commodities and shortages of others, queues, and black markets.

Progressively after 1950 the government sought to control the general price level by the means of the indirect instruments of the social plan and to allow individual prices to reflect market conditions. It aimed to use market-determined prices and profits as guides to allocation of resources, subject to various restraints of the social plan. Compulsory deliveries in agriculture were abolished, and by mid-1952 a free market was established for most commodities. The government reserved the right, however, to set maximum prices for certain key materials and for procurements of certain agricultural products.

Banking and Credit. During the administrative period of the Yugoslav economy a socialist enterprise financed current production from its own working capital except for seasonal peaks which were met by recourse to short-term credit. Investment needs generally were covered by interest-free grants from the state budget. Both short-term credit and investment grants were distributed on the basis of centrally established plans. The banking system watched over the use of the funds to see that they would not be diverted to uses other than planned. Such a scheme of allocating financial resources was in keeping with the official view that in a socialist economy the central plan would replace the market in the co-ordination of economic activity. More recently, however, this procedure was charged with stifling the initiative of enterprises and with permitting inequities to exist among them with regard to their endowments of fixed and working capital.

In the theory of the new economic system, society provides working

capital for the use of an enterprise. The enterprise does not possess its own working capital, but instead it has the right to continuous bank credit for which it must pay interest. The interest charge is expected to motivate enterprises to avoid excessive inventories and to operate more efficiently than in the past.

The provisions introduced in 1954 require that short-term credit, like the investment credit already discussed, be distributed on the basis of competition among credit seekers in accordance with their creditworthiness and their willingness to pay a rate of interest equal to or greater than the rate which would equilibrate the demand for credit with the resources available in the given competition. Minimum rates of interest are specified in the federal social plans.

The Socialized Enterprise. The chain of command over economic enterprises during the administrative period extended from the economic ministries through special administrative units down to the production enterprises. There was small scope for independent decision making at the enterprise level with regard to volume and assortment of production, prices, wages, and disposition of profits. These elements were prescribed centrally. Yugoslav discussions rationalize such arrangements as essential in the first phase of establishing a socialist economy but characterize them as breeding bureaucratic tendencies and hindering development at a later stage.

Upon the advent of the new economic system, the enterprise is described in Yugoslav discussions as an independent economic organization operating within the framework of general measures prescribed by the social plan and by over-all regulatory provisions. Subject to these restraints, the enterprise is supposed to be guided by the market in establishing its production program. Relations between socialist enterprises are market connections. In principle, free contracting governs such relations.

The obligations of the enterprise toward the federal and republic governments are realized automatically by the operation of provisions governing such matters as interest charges on fixed and working capital, turnover taxes, rents, and profit taxes. After these obligations are met, the local governments decide on the division of the remaining profits between themselves and the enterprises.

The internal administration of the socialist enterprise in the new economic system consists of a workers' council, an administrative committee, and the director of the enterprise. According to legal provisions, the employees in secret balloting select the council and the council selects the administrative committee. The committee chooses one of its members as chairman. The director of the enterprise is selected on the basis of a public competition conducted by a special commission

appointed by the local government but his appointment is subject to the approval of the local government.

The director organizes the work and manages the business of the enterprise. The administrative committee prepares proposals of economic plans and internal regulations for decisions by the workers' council, prepares monthly plans, appoints supervisory officials, resolves employees' complaints, decides questions of workers' norms of production, and passes on the professional advancement of employees.

In the event of conflict between the director and the workers' council, the decision to relieve the director or dissolve the council and order a new election is made by the local government. Since the governments, both local and higher, include representatives of the workers, the Yugoslavs describe this system of administration as workers' self-management.

Formally, this scheme of management represents substantial decentralization over the earlier system of direct administrative control from above. In practice, aside from the important role of the local government in the appointment of the director and in control over the division of profits remaining after federal and republic levies had been met, the question of the real self-management of employees through the administrative committee and the workers' council depends on the role of the Communist Party in controlling nominations for these bodies and on discipline within the party. Statements by party leaders indicate that the party's monopoly in the political field must not be challenged and that members of the party must follow the established line.

Agricultural Policy. Yugoslav official views on the organization of agriculture in the postwar period continuously favored its socialization. In order to destroy the basis of political power of large landowners and gain the support of the poorer peasants, in August, 1945, the government confiscated the large estates. It distributed a part of the land thus obtained to the poor and landless peasants in the form of small parcels while retaining the rest for later grants as incentives for the formation of collective farms. Through coercive measures, such as discriminatory rates of taxation, discriminatory schedules of compulsory deliveries of agricultural products, preferential treatment in matters of credit and supply of equipment to co-operative farms, and other pressures, the government pushed its program of socialization of agriculture on the Soviet model of state farms, collective farms, and state-owned machine and tractor stations. Such a scheme of organization could permit effective state control of the harvest in the interest of supporting the program of industrialization and would facilitate the transfer of rural labor to industry.

Upon the transition to the new economic system the government re-

vised its agricultural policy in recognition of the depressive effect its earlier policy had on production. Though still favoring socialized agriculture, the government allowed the peasants to withdraw from or disband existing co-operative farms. However, it foreclosed the possibility of development of large-scale private farms by setting in 1953 a ceiling of ten hectares as the maximum size of individual farms for most areas of the country. Land in excess of this maximum was taken by the government for compensation and was used for fostering the development of co-operative forms of agricultural enterprise.

Prior to 1952 the tax on agricultural incomes was set by tax commissions on the basis of estimated income realized in the tax year. This was regarded later as harmful to production incentives, and accordingly in 1952 a tax levy based on cadastral net income according to average yields of land was introduced to encourage peasants to increase their production without fear of tax levies on the production above the established average yield. The process of introducing the cadastral system was slow, however, and in 1954 it still was not in use over the whole country.

Compulsory deliveries of agricultural products to state procurement agencies were finally abolished in 1952-53. Agriculture, which hitherto had been squeezed to provide investment resources for industry, was scheduled to receive an increased share of total investment.

Application of the new economic policies resulted in a drastic shrinkage of the collectivized sector of agriculture. Current official views favor the gradual socialization of agriculture through the medium of general purpose co-operatives.

The changes in the Yugoslav postwar economic system and methods of planning underline the shortcomings of highly centralized planning and control. Evolution of the new, less centralized system has been *ad hoc* in nature, and it is still in a state of flux. It is too early to judge how well the present system will meet Yugoslav expectations.

ECONOMIC THOUGHT AND ITS APPLICATION AND METHODOLOGY IN THE EAST

THE STATE OF JAPANESE ECONOMICS*

By MARTIN BRONFENBRENNER
University of Wisconsin

Introduction

All I hope to do is to outline, very generally, some of the main features of contemporary Japanese economic thought as seen through one foreigner's eyes. The detailed job of digesting and criticizing individual works and authors is being done, not only in Japanese, but also in English, by Japanese writers. Let me therefore mention in passing the *Japan Science Review (Economic Sciences)*,¹ whose first number has already appeared and which may develop into an approximate equivalent of our *Survey of Contemporary Economics*.

I am a self-appointed member of the Lafcadio Hearn chapter of this great fraternity, meaning that I feel as nearly at home in Japan as in my native land. But "I am not fond of everything one sees, that's Japanese," and economic thought has not been Japan's outstanding contribution to world culture. Indeed, I may say a few things in this essay which my Japanese friends may consider less than courteous, and for which I apologize in advance. Let me confess at the outset, then, my admiration for the Japanese economists, particularly the younger ones, who have recovered in ten years more than Japan had lost (by comparison with Western economics) in the previous militarist generations. Their capacity for study and scholarship is especially impressive in view of the miserable conditions under which they have lived for this whole period and the need for most of them to accept side work of a nonacademic nature to keep from starving.²

* This essay was first drafted in Tokyo during the summer of 1955, while the writer was the beneficiary of a research grant from the Research Committee of the University of Wisconsin and of office space and other facilities from Keio University. Preliminary versions were presented at three Tokyo universities: Hitotsubashi, Keio, and Meiji-Gakuin. At each presentation, ideas were gleaned and errors excised. The processes of gleaning and excision have continued subsequently, thanks to a dozen or more Japanese economists currently in America and almost as many American economists with experience in Japan. Needless to say the writer is responsible for the remaining errors.

¹ *Op. cit.*, vol. i (Tokyo: Japan Union of Associations of Economic Sciences, 1953). This particular issue is one-sided in omitting reference to agricultural and labor economics, Oriental economic history, or the history of Oriental economic thought.

² The average salary of a full professor at a major national university in 1955 was about \$100 a month after income taxes, at official exchange rates. Lower ranks and private universities generally pay less. A normal teaching load, however, is from four to eight hours a week. This gives the better-known professors ample time for outside jobs.

Since my appraisal of Japanese Marxism in particular is not high, I want to take this opportunity to dissociate myself from the near-suppression of Marxian economics in America, which contributes rather largely to our unpopularity in Japanese intellectual circles. The greater freedom existing in Japanese universities in this respect seems to me almost completely laudable although occasionally abused.

Three Besetting Ailments

Japanese economic thought is as advanced as any in the Orient—perhaps even more so. Yet it seems to suffer from three besetting ailments: sectarianism, inbreeding, and schizophrenia. Sectarianism separates the different schools of economists unnecessarily from each other. Inbreeding characterizes nearly all the better-known economic faculties of the country. Schizophrenia separates the on-campus thinking from the off-campus thinking of many individual economists. On the other hand, these ailments are common in Japanese intellectual life and are probably less rampant today than they were a few years ago.

The visiting American is immediately struck with the first affliction mentioned—the sectarianism. This is because approximately half the professional economists of Japan are Marxists illiterate in “modern economics.” This is a mere guess and not a statistical estimate. Most of the public university departments of economics are more than half Marxist, most of the private university departments less than half so, and there are numerous exceptions in each category. The leading seats of Marxism in Japanese economic thought are perhaps the Tokyo, Kyoto, and Kyushu national universities and the Osaka municipal university. The proportion of Marxists appears rather higher than it is, because few non-Marxists go in for strongly anti-Marxian public policy statements since the Occupation purges of 1945-47 equated anti-Marxism with militarism and fascism.

In the exclusivist nature of their training and thinking, Japanese Marxists of the dominant *Kōza-Ha* sect³ resemble their Soviet counterparts more closely than they do such Anglo-American Marxists as Maurice Dobb or Paul Sweezy. Dobb and Sweezy have their Japanese

³ So-called from a seven-volume co-operative treatise, *Nihon Shihon-shugi Hattatsu Shi Kōza* (“Lectures on the History of the Development of Japanese Capitalism”) (Tokyo: Iwanami, 1932-33), to which should now be added an eleven-volume successor, *Nihon Shihon-shugi Kōza* (“Lectures on Japanese Capitalism”) (Tokyo: Iwanami, 1953-54). These volumes, particularly the later collection, are designed as “theoretical aid for the People’s Movement for Peace and Independence.” They are inflammatory in their language, ascribing whatever they find evil in Japan to capitalistic rather than precapitalist elements. They further reject such bourgeois notions as “competition” in favor of a concept of the entire capitalist class banded together in a vast demonic conspiracy against the general welfare. The other major Marxian sect, the *Rōnō-Ha*, includes a larger proportion of “people one can talk to.” More objective and analytical, this group commands more respect than its rival among non-Marxist economists but has less following among workers, students, and intellectuals generally.

followers, but Sweezy at least is not considered Marxist at all in *Kōza-Ha* circles.

Marxism entered the Japanese labor movement before 1900, but it entered the universities a generation later, almost as a by-product of the Russian Revolution. (On Japanese Marxism and its history, I have profited greatly from conversation with, and unpublished writings of, Professor Etsuji Sumiya, of Doshisha University, although our viewpoints differ widely.) It entered as the evangelism of revolutionaries, and only secondarily as a pattern of economic analysis or philosophic thought. (Professor Hiroshi Kitamura, of the Tokyo Prefectural University, reminds me, however, that Marxism also appeals as a philosophical system to generations of Japanese intellectuals whose training in philosophy has been concentrated on the German idealists and romantics from Kant through Schopenhauer.) The first outstanding Japanese Marxian economist, Hajime Kawakami, achieved as much popular acclaim for rabble rousing as for scholarship. He was purged and jailed for his beliefs; his health was ruined and he died shortly after the Occupation released him in 1945. He is revered as a martyr by radical students. The combination of his personal attributes and his tragic fate influences his followers toward action and away from theoretical subtlety.

Under Russian, Chinese, and native Japanese influences, the typical Japanese *Kōza-Ha* Marxist is today a rigid follower of a party line, usually the Communist but occasionally the Left Socialist. (The Left Wing of the Japanese Socialist Party, like the Communist, is Marxist in its thinking. It differs from the Communist Party, however, in relying primarily on parliamentary procedures rather than violence as a means of achieving and retaining political power.) Even when his specialty is economics, all he knows is Marx, Engels, Lenin, Stalin, and their popularizers. He is proud of his ignorance—everyone else having been refuted either by one of his "Big Four" or by the march of events. Even his Marx is apt to be "Marxian Fundamentalism," meaning that he knows the text thoroughly, chapter and verse, but somehow misses most of the analytical content of *Capital* (beyond the pamphlet simplifications of Volume I), to say nothing of possible additions or replies to criticism. He "knows all the answers" in terms of popular Marxian slogans and clichés, and is impatient with any research which does not take these answers for granted, whether that research be inductive, deductive, or statistical in character.

Marxian fundamentalism has not stood in the way of much interesting and scholarly work in historical and descriptive economics, some of which has been published in Western languages. On the other hand, it has led to childish applications of a crude labor theory of value to

current problems. One example from international trade: It would be inconceivable for Japan to be "exploited" by China or Russia if Japan went behind the Iron Curtain. "Socially-necessary labor-times," i.e., values, could be computed scientifically for each item of Japanese, Chinese, or Russian goods. Then all relative prices, including exchange rates, could be fixed just as scientifically, without exploitation of any party. Wage-price relations in Japan itself give us another illustration: It is Marxian orthodoxy that wage increases are paid from profits and cannot be passed on to consumers. Prices are related to values, which depend on quantities and not on prices of labor-time. Inflation, when it occurs, is due to capitalists adulterating the currency to exploit the masses; no wage-price spiral has anything to do with the case.

Dismissing most Japanese Marxism as partisan propaganda, which does not deny its practical importance, we pass to the other half of the profession. This should be subdivided further, into "political economists" on the one hand and "pure" or "modern" economists on the other. The political economists comprise the majority of the older generation—men over fifty. Many of them are German-trained, following the Historical School, the Socialists of the Chair, or the Neo-Romantics. Their attention has been concentrated on economic history, on "social policy" (meaning labor problems and social insurance), on public finance, and on other branches of applied economics. They are Japan's closest approach to our "business economists" or to our more conservative and pragmatic "institutionalists." Young men seeking business or governmental preferment flock to their seminars, for they have influence in these circles. At the same time they are under something of a cloud among their fellow intellectuals, having accommodated themselves a little too comfortably to the doctrine of "whatever is, is right" or at least "whatever is, is Japanese" during the fascist decades and having followed the official line too closely in their teaching and writing.

"Modern economists" and "pure economists,"⁴ with a few eminent exceptions like the Schumpeterian Ichiro Nakayama and the "Japanese Marshall," Yasuma Takata, are younger men. Predominantly Anglo-American in their training, many have studied abroad. They have come to the fore since the end of World War II. Their thinking and writing are for the most part abstract and mathematical. Equally at home in micro- and macroeconomics, their attention has tended to concentrate along lines of Walrasian general equilibrium, Keynesian income and

⁴ This group should be distinguished sharply from "classical economists," of whom a number survive in Japan. The latter are a motley group, some primarily historians of economic thought, some latter-day physiocrats or Ricardians, some cautious Marxians in disguise. (During the period 1928-45, classical economics was the standard protective coloration for Marxism.)

employment theory, and Harroddian dynamics, to the neglect of the standard pabulum of partial equilibrium.

This is the group which, in ten years, has caught up with England and America from a position of nearly hopeless inferiority. It is also the group which has come furthest toward positive contributions to the international body of economic thought. Its works are appearing somewhat belatedly, and in bits and pieces, in many journals familiar to Western readers; for example: *Econometrica*, *Economia internazionale*, *Metroeconomica*, *Quarterly Journal of Economics*, *Review of Economic Studies*. Three Japanese universities—Hitotsubashi, Kyoto, Osaka—also publish research periodicals in English. So far as I have understood these contributions, many of which are beyond my mathematical depth, they are highly polished refinements of technical problems without immediate application. I am assured that their larger works, available thus far only in Japanese, rank much higher in depth, breadth, and originality. It is probably unfortunate that these younger men's attention has been concentrated almost completely in pure theory, since this concentration leaves such a wide gap between the theoretical and the applied non-Marxian economics.

Marxists, political economists, and modern economists work cheek by jowl in most Japanese universities, government bureaus, and research organizations, but their relations are formal and distant. Often the three groups simply ignore each other.⁵ It is easy for a university student, for example, to learn nothing but Marxism, nothing but historicism, or nothing but mathematical economics—all the way from his principles or *Genron* course to his Doctor of Economics or Kz.H. degree.⁶ In some institutions, the only non-Marxian economics the typical Marxist ever studies is one seminar given by some eminent conservative. Here he enrolls but never attends, since the only purpose of the seminar is to camouflage his university record in case he looks for business employment.

Actual conflict between Marxian and non-Marxian economists sometimes arises over control of the elementary course, with the Marxists

⁵ Compare this comment by one of the few Japanese equally at home in both Marxism and modern economics: "The two schools [Marxian and Modern] have not been on speaking terms with each other. One school does not understand the language of the other, and the latter would not care to understand the former." Shigeto Tsuru, "Keynes versus Marx: The Methodology of Aggregates," in K. K. Kurihara (ed.), *Post-Keynesian Economics* (Rutgers, 1954), p. 320.

⁶ The Japanese *Keizai-gaku-Hakushi* degree has been a hybrid between the American Ph.D. in economics and the American LL.D. It is awarded in the name of the Ministry of Education on the basis of a man's entire work, and therefore takes longer to earn than the American doctorate. Specific pieces of work are, however, submitted with each application, and the degree is more than honorary. It is not, like the Ph.D., in any way requisite for university employment; only a minority of full professors have it, mainly older men who received it after years of teaching and research. Japanese graduate schools are currently in process of transition, and future Kz.H. degrees will be the approximate equivalents of the American Ph.D. in economics.

usually winning the larger and more attentive audiences. They are much the ablest in putting their material into elementary form and making it relevant. Modern economic *Genron* textbooks and lectures, in particular, correspond to what Americans would consider graduate work in economic theory. They are too abstract and mathematical for most undergraduates while the Japanese translation of the Soviet *Text-Book of Political Economy* is a nonfiction best seller. Furthermore, the Marxists, after presenting the basic dogma in capsule form, concentrate their attention on modern problems and do not go off on side issues or abstract models. Marxian pessimism about Japan's future under capitalism also appeals, as is only natural, in an economy which for two generations has never known prolonged peaceful prosperity, in which capitalism means monopolies and cartels and in which there is a perennial problem of unemployed intellectuals (aggravated by increased educational opportunities introduced under the Occupation).

Another conflict relates to student discipline. Japanese practice is to have discipline problems dealt with by the student's major department and not by the university. When Marxists control a department, such as economics, one particular breach of discipline, namely rioting, is treated as field work for the Revolution, or "unity of theory and practice," and is encouraged by the faculty. (Younger and huskier professors have allegedly participated in person.)

There are two main hopes for providing common ground for these conflicting economic philosophies. One is represented by statistical and econometric research, which flourishes in Japan despite inadequate basic data and calculating equipment. Unfortunately the requisite mathematical and statistical technique has the tendency in Japan as elsewhere to repel many of the more historically inclined. Another possible common ground is economic dynamics or growth economics, represented in the English-language literature by writers as diverse as Colin Clark, Domar, Harrod, Kuznets, and Schumpeter. If we mean by the economics of growth the study of its causes and consequences and not merely the statistical determination of growth rates, it combines elements from all the schools I have mentioned. Growth economics is attracting increasing attention among Japan's rising young economists. This is not surprising, since Japanese economic growth has been among the marvels of the last hundred years and since there is great controversy both as to its continuance and its serviceability as a model elsewhere in the world.

A common-ground movement is in fact going on: two names which should be mentioned in connection with it are the late Eiichi Sugimoto and Professor Shigeto Tsuru, Director of the Institute of Economic Research at Hitotsubashi University. This common-ground movement,

whether through econometrics or statistics or growth economics, gets no support from the Marxian fundamentalists. Perhaps the explanation for their intransigence is psychological rather than logical. They fear having their orthodoxy called in question, or having their ignorance of non-Marxian economics exposed. They also profess contempt for "bourgeois statistics"; if the figures disagree with Marx or with Lenin, then the figures are wrong. Such irrationality is common to evangelists of all persuasions in all countries, but its prevalence among *Kōza-Ha* Marxists is unusually high.

Institutional Inbreeding

With only a few exceptions, the better-known Japanese universities are characterized by inbreeding to an extent Americans would consider scandalous. Perhaps 90 per cent of the regular faculties of these institutions are composed of their own graduates, and it is a sign of newness or inferiority to recruit widely from outside. Furthermore, each major institution—and many of the minor ones—has an economic journal or "house organ" of its own, in which its own staff publishes and which is read by its own captive audience. It is as though only Harvard men wrote for and read the *Quarterly Journal of Economics*, only Chicago men the *Journal of Political Economy*, and there were no *American Economic Review*.¹

But despite the extent of inbreeding which exists in Japan, most of the consequences Americans associate with inbreeding are absent. In almost all departments one finds Marxists, political economists, and modern economists. There is apt to be a man who has studied at London, another who has been to Columbia, and another who has spent a year or two in Berlin. A Japanese economics department may be staffed 100 per cent by people without degrees from anywhere else, but it is still a kind of economic macrocosm in microcosm, never an obscure cult of forgotten local celebrities.

Neither does inbreeding cause intellectual isolation. Japan is a small country, with universities concentrated in a few large centers—over sixty in Tokyo alone. It is quite common for a professor at one university to lecture at one or more others to supplement his income. (It happens not infrequently, however, that some professor may have two jobs hundreds of miles apart. In this event, he crowds a semester's lectures into a month or six weeks at one institution, and then is off to the other. Sometimes this system forces him to give six or eight hours of lectures in a single day—not a pleasant prospect for professor or stu-

¹ The journal *Riron-Keizai-gaku*, however, is a Japanese counterpart of *Econometrica*. The journal *Keizai-Kenkyu* is furthest of university periodicals from purely house organ status.

dents, particularly in the hot Japanese summer.) Geographical proximity makes it easier for faculty members at different institutions to know each other and exchange ideas than is usually the case in the United States.

Professional Schizophrenia

We have met the businessman who cheats his customers six days a week and then purges himself of his sins in church on Sunday. Many Japanese economists have the same kind of split personality. Outside the classroom, they dabble in anything and everything. They write for newspapers and low-brow magazines, direct companies and pressure groups, arbitrate labor disputes, and arrange marriages. This is not exclusively to make money, although money is more of a problem than it was before the war, when Japanese professors' real incomes were higher. It is quite in accordance with Chinese and Japanese tradition. There is a proverb: "Seki no atatamaru itoma nashi," meaning that a great man never stays still long enough to warm the cushion where he sits. Many Japanese professors consider themselves great men, and juggle multitudes of jobs accordingly. Yet when they enter the classroom, they usually purge themselves of all extracurricular sin by becoming as abstract and otherworldly as they can.

A man with an outside job arranging dumping or price fixing for a sewing-machine or shipbuilding cartel will preach in class the virtues of pure competition and free trade, with as many diagrams and equations as you please. His colleague who arranges special privileges for taxpayers through his ex-students in the Finance Ministry will discourse on the philosophical first principles of fiscal science as derived from Confucius, Kant, Hegel, and Adam Smith—all with a straight face and no consciousness of anomaly. (I need not state that these "examples" are entirely fictional.) One leads a double life; that is all. One life is academic; the other practical. One does his best at both and lets neither interfere with the other.

The Marxists, on their part, are more consistent. They harangue their classes and seminars on the same problems as they harangue their street-corner audiences and the readers of *Akahata* ("Red Flag"—the Japanese equivalent of the *Daily Worker*), and sometimes in the same vulgar language. This is another example of the "unity of theory and practice."

These schizophrenic tendencies have some unfortunate consequences. For one thing, less academic attention is paid to the economic problems of modern Japan than American economists pay to the economic problems of modern America. It is unfair to generalize from a single example, but it seems symptomatic that the *Japan Science Review*, which approximates our *Survey of Contemporary Economics*, spends many

pages on Japanese research on the history of European economic doctrines and institutions but completely ignores their Oriental and Japanese equivalents. Furthermore, less attention is paid in Japan than in America to the improvement of basic economic data, statistical and otherwise. (Data exist in abundance, but the quality is poor, comparability often lacking, and inconsistencies sometimes left unexplained.) There is also less migration in Japan than in America from the universities to the government and back, with the result that the Japanese government relies on attorneys or A.B. economists for most of the jobs which in America are reserved for economists of professional standing. In terms of the academic work turned out by people whose practical interests are somewhere else, there seem to be three problems. In theoretical work there is excess abstraction; in institutional work, there is excess antiquarianism; in all fields, there is too much concentration on transmission and translation of the works of foreign scholars at the expense of "look and see." Please do not misunderstand me. The empirical spirit is very much present, but it is exercised in the scholar's outside job, not in his professional connection.

This situation is improving, largely through the efforts of younger men without influential contacts and lucrative side jobs. There have been established at least two large university institutes of economic research, including although not confined to empirical study of current Japanese economic problems and conditions. One of these is at Hitotsubashi University in Tokyo and the other at the Osaka National University. These seem closer to the Oxford Institute of Statistics or the Cambridge Department of Applied Economics than to any American organization known to the writer. Within the Japanese government, the Economic Planning Board (formally known as the Economic Counsel Board, and previously as the Economic Stabilization Board) has become a haven of research activity for economists. A few other governmental agencies are beginning to follow its lead, within the Ministries of Finance, Agriculture, and Trade and Industry. Japan has also established as a public corporation an Institute of Statistical Research. It obtains funds from both private and public sources, works on a wide variety of problems, and recruits its staff mainly from the faculties of universities in Tokyo. This agency is intended to combine under one roof many of the activities of the American National Bureau, Cowles Foundation, and RAND Corporation. There are more specialized research institutes in particular branches of economics, of which the best known is perhaps the National Research Institute of Agriculture directed by Professor Seiichi Tobata, of Tokyo University.

As yet the main advances have been statistical: national-income estimates, family-budget studies, production indexes, balances of payments,

and so on. In the summer of 1955, the results of two large-scale input-output studies for 1951 were made public. It remains to be seen how useful they will be, as there may be some inconsistencies between them and the Japan of 1955 is rather different structurally from the Japan of the Korean boom of 1951.

Conclusion

In the hundred years since Commodore Perry and his black ships, Japan's intellectual activity has been directed primarily along Western lines, and it has therefore been largely derivative. This characteristic has made it the butt of a good deal of humor, most of it both unkind and unhumorous. There has been transmission of Western ideas, translation of Western works into Japanese, application to a considerable range of Japanese problems, and refinement in detail. More recently, in the natural sciences, Japan has gone further to contribute major figures to the international scene. Perhaps the best known of these have been the bacteriologist Hideyo Noguchi and the theoretical physicist Hideki Yukawa.

An economic equivalent of Noguchi or Yukawa may already have appeared and begun to write. I cannot speak of the Japanese-language literature, since I am only semiliterate in technical economic Japanese. I can say, however, that if this economic Noguchi or Yukawa exists, he has not published any major works in intelligible English, French, or German. Until he does or until his Japanese works are translated, one must regretfully classify Japanese economic thought as still in the essentially derivative stage which Japanese thought in some natural sciences has outgrown—transmission, translation, application, and refinement.

ECONOMIC THOUGHT AND ITS APPLICATION AND METHODOLOGY IN INDIA

By MAX MILLIKAN

Massachusetts Institute of Technology

The reported experiences of travelers suggest that there are three stages in the understanding of a foreign country. The first visit, especially if it is quite brief—say no more than three weeks—leaves one with a number of sharp impressions and a conviction that one really understands the essential features of the culture. A second visit (or the fourth or fifth week of the first) plunges one into confusion. One is no longer able to ignore the persistently recurring exceptions to one's first generalizations. The complexity and variety of the country press in upon one; every simplification becomes demonstrably wrong; one loses completely one's self-confidence as an observer and becomes painfully aware of the inadequacies of any general statement. Finally, though this may not happen for twenty years or more, one recovers one's perspective and finds the scene sufficiently familiar in every detail so that once again one can caricature the country in rough outline, confident that the features one consciously exaggerates are nevertheless the things it is most important for someone else to know about.

I did not fully realize until I had accepted this assignment what poor shape I am in to try to tell others the main characteristics of Indian economic thought and its application. I could have done this easily and with breezy assurance two or three years ago when my interests had just turned in the direction of Indian economic problems and thinking. My generalizations would have been for the most part wrong, but they would have been at least clear and interesting and my own soul would have been at rest about them. Now I am in the second stage of confused insecurity. I shall try to simplify, but I shall not sleep well afterwards.

I feel particularly acutely one limitation. I am not a student of Indian history or of the history of Indian thought and philosophy. My concern with Indian problems dates mainly from the birth of India as an independent nation, and my reading of Indian economic literature is largely confined to quite recent writings and exclusively confined to publications in the English language. It is therefore entirely possible that there are rich veins in Indian economic thought that I have missed altogether. I am reasonably confident, however, that these veins, if they exist, do not intersect the main stream of Indian economic

thought with which I am familiar. The roots of modern Indian economics lie mainly in the English classical tradition and I have found little either in the analytic content of the Indian journals or in footnote references in the English-language literature to suggest that there has been an important influence coming to Indian economics from Hindu or other indigenous Indian philosophy. But I am conscious of my ignorance, and request correction on this point if I am mistaken.

The first point to be made about Indian economic writing is that there is a great deal of it and that it has a long tradition. The *Indian Journal of Economics*, which like the other two professional journals described below patterned its form and scope after the *Economic Journal* of the Royal Economic Society, published its thirty-fifth volume in 1954. The contributors in that year, as throughout most of its history, were overwhelmingly Indian economists, though it was founded by Professor H. Stanley Jevons. Unlike many of the other countries of Asia which have recently won their independence, India has for decades had a body of professional economists teaching and doing research at Indian universities. During the colonial period the great majority of these men received their professional training at Cambridge, Oxford, and the London School of Economics. They then returned to India to take up positions in the principal Indian universities, all of which have long had economics departments, or in the Indian Civil Service which the British, for some years prior to independence, systematically staffed with Indian personnel.

Thus when independence was achieved there was a substantial body of Indian economists eager to establish new outlets for their professional work, to strengthen existing institutions for promoting economic research, and to establish new institutions. In 1955 there were over five hundred professional members of the thirty-seven year old Indian Economic Association, and this body was growing rapidly. There were many universities granting the Ph.D. in economics and a number of research centers doing advanced work in the field. Outstanding among these are three: the Delhi School of Economics under the direction of Professor V. K. R. V. Rao, the School of Economics and Sociology of the University of Bombay headed by Professor C. N. Vakil, and the Gokhale Institute of Politics and Economics directed by Professor D. R. Gadgil. The Indian Economic Association launched the *Indian Economic Journal*, a quarterly, in 1953, and in the following year the Delhi School began publication of the *Indian Economic Review* as a biannual journal. That the flow of books on economics by Indians is as voluminous as that of periodical articles is indicated by the fact that of the thirty-two volumes reviewed in three representative issues of Indian journals last year fifteen were by Indians and were published in India.

To these professional journals should be added such reports, primarily statistical but containing analytic articles, as the *Monthly Bulletin* of the Reserve Bank of India, the *Indian Labour Gazette* issued monthly by the Ministry of Labour of the government of India, *Agricultural Situation in India* issued monthly by the Ministry of Food and Agriculture, and other government publications. There is a substantial product from such organizations as the Indian Council for Agricultural Research, the Indian Society of Agricultural Economics, the Federation of Indian Chambers of Commerce, the Association of Indian Trade and Industry, and the like. For shorter analyses of current economic developments, one can turn to such weeklies as the *Eastern Economist*, edited in Delhi by Eric Da Costa, the *Economic Weekly* of Bombay, or *Capital* of Calcutta.

One cannot complete this quick review of the sheer scale of intellectual activity in economics in India without some mention of the correlative tradition of statistical enquiry, both practical and theoretical. The Indian Statistical Institute at Calcutta, under the direction of Professor P. C. Mahalanobis, is both a center of advanced graduate training and research in pure and applied statistics and the nerve center of the National Sample Survey, an ambitious effort supported by the Indian government to secure continuing estimates of the national income and its components and of related magnitudes by sampling techniques. Here also is published *Sankhya*, the Indian journal of statistics, now in its fifteenth volume.

After this review of the level of activity in economics and related subjects in India you will perhaps understand my reluctance to characterize the product in a few sweeping generalizations. My first impulse is to insist that Indian economists are essentially members of an international professional fraternity more influenced by the preoccupations and intellectual presuppositions of their colleagues throughout the world than by anything specifically and uniquely Indian. In some Asian countries this is true because the work done in those countries is done not by nationals of the country but mainly by Westerners temporarily resident there. This is not true of India. The organizations described above are staffed almost exclusively by Indians and the journals edited and written by them. It is perhaps the more surprising that it is hard to find evidences of a distinctively Indian approach to economic theory. Leaving aside empirical work on Indian data, which I shall comment on presently, the theoretical articles one found in the journals until a few years ago dealt with such familiar topics as consumers surplus, pricing under imperfect competition, quasi-rents, the propensity to consume, aspects of trade cycle theory, and the like.

This is presumably to be explained on three grounds. First, most Indian economists prior to World War II passed their formative years of

undergraduate and graduate study at English universities where the intellectual problems presented to them were those that were interesting and absorbing their British tutors. Second, the language in which they continued to write and work after their return to India was English. They continued to look upon themselves as contributing to the main stream of British and American economic literature and thought of their potential audience at least as much in terms of the economists they had come to know in England as in terms of their Indian colleagues. Finally, until the very last years of British rule there was little incentive for Indian university people to work out a set of economic principles appropriate to the design of a grand strategy of economic policy for India. They were encouraged to equip themselves for technical jobs in the civil service, to learn how to apply the tools of statistical and applied economic analysis to Indian conditions, and to conduct empirical investigations into factual conditions in India, but not to challenge the basic organization or fundamental purposes of economic activity. Accordingly, the best of them went into empirical and practical rather than purely theoretical work. Vakil's early work was on finance and trade, Rao's reputation was made by his estimates of the national income of India, and Gadgil is known for the empirical surveys he has directed and for essays on such applied problems as railway rates and civil service salaries. All these men are first-class economists and all have written on theoretical issues. I am saying only that the bulk of their work until recently has been in fields other than pure theory. Those with a strong preference for pure theory tended to pick their problems from the models developed in the West. Gadgil speaks of "the founders of our discipline—the Physiocrats and Adam Smith— . . ."¹ In two recently published representative collections of Indian writings on economics, both well footnoted, there are only four footnote references to Indian economic literature other than government reports.²

My nervousness about the validity of any generalization prompts me to mention some exceptions. One of the preconceptions with which I approached the Indian literature was that of course I would find there a different set of fundamental conceptions of economic welfare from those embodied in the English classical tradition. I was thus delighted during my first two weeks in India to have a long talk with the head of the department of economics at a leading Indian university, who expounded at length his theory of the wantless society. The problem of eco-

¹ D. R. Gadgil, *Economic Policy and Development* (A Collection of Writings, Gokhale Institute of Politics and Economics, Publication No. 30, Poona), p. 2.

² D. R. Gadgil, *Economic Policy and Development*, and C. N. Vakil, ed., *Papers in Economics, Silver Jubilee Memorial Volume* (School of Economics and Sociology, University of Bombay, Bombay).

nomic development, he explained, arose from the existence of a gap between human wants and the capacity of an economy to satisfy those wants. This gap could be closed in two ways: by expanding the output of goods and services or by reducing wants to the level of availabilities. Classical economics concentrated on the first of these, while he felt that the second was the correct method for India. I asked whether there was not a lower limit of consumption necessary for health and physical well-being if not for survival, and if the consumption of many Indians was not below this lower limit. He denied this, insisting that even food requirements were a matter largely of habit and citing a recent case of an Indian girl who was alleged to have survived for some months with no nourishment whatsoever. Unfortunately for my preconceptions none of his Indian colleagues was willing to take his theory of the wantless society seriously, possibly because shortly after this interview the Indian girl was disclosed by the papers to have been secretly receiving food daily.

R. Mukerjee, of Lucknow, a distinguished sociologist and economist, has put forward in his writings the notion that whereas in the West the measure of success of the agricultural sector was taken to be the level of output per man, in the East a more appropriate and fundamental measure was taken to be the level of output per acre. Here again I thought perhaps I had found a fundamental divergence, but when this distinction was developed by an Italian economist two years ago at a meeting of the International Economic Association, it was vigorously attacked as unrepresentative of Indian thinking by C. N. Vakil.

It should be said that in the preindependence writings on applied problems of many Indian economists there is to be found a concern with social welfare and a conception of the role of the state in the economy which would not follow from the more extreme forms of nineteenth-century *laissez faire* doctrine. Critical attacks on the presuppositions of *laissez faire* are easy to find in the Indian literature. But to one brought up on the Western literature of the thirties and forties there is nothing peculiarly Indian about the point of view put forward. The horse being beaten in these pieces certainly has little life left in him in the United States and none at all in Great Britain. The attacks are all border forays from a fortress whose bastions are all solidly classical. Indeed, given the strong Fabian socialist bias of the Congress Party's political thinking, one might have expected to find Indians seizing on the Lange-Lerner models of socialist pricing and eagerly debating their application to India, but my limited probings have uncovered no extensive elaboration by Indians of formal socialist economic models. The above remarks are directed primarily at the preindependence literature. While they are still largely applicable to more recent

work, the policy problems posed by the great Indian development effort have affected economic thinking in India deeply in the last few years. I shall return to comment on these developments in a moment.

First, however, I should like to set a headstone on another of my preconceptions which I have reason to believe is still common among those unfamiliar with Indian economics. This was the notion that economics in India was primarily formal and insufficiently concerned with observation and measurement. It is difficult to see where this misconception comes from, since a quick glance at the titles of a representative selection of Indian books and articles would be sufficient to dispel it. There are major studies of most of the industries in India: studies of labor conditions, studies of finance and banking, studies of almost every aspect of agriculture in the large and in the small, studies of crops, studies of villages, studies of the handloom industry, studies of unemployment, studies of almost every aspect of Indian economic life one could conceive of examining and measuring. A principal preoccupation of Indian economists has been serving on inquiry (or enquiry) commissions set up in great profusion by both central and state governments to look into industries, railways, agriculture, exports, etc. Particularly popular have been social and economic surveys of cities or regions somewhat on the pattern of the early British social surveys.

In fact, Indian economics can perhaps be criticized for being a little "survey happy." This avid construction of questionnaires and of tables has frequently been pursued with no very clear notion of what the mass of factual material being collected was supposed to be used for. Indian empirical studies are as subject as similar studies elsewhere to the weakness that when one goes to them with a sharply formulated analytic question one almost invariably finds that the particular information one needs was not collected by the study. Again there is certainly nothing peculiarly Indian about this. Economists all over the world are only gradually learning how to weave theoretical models and observable numbers together into an analytically coherent picture of reality. Indians are making as much, if not more, progress on this front as anybody else. If there is to be a bias toward one end or the other of the theory-fact spectrum, it is probably a good thing in a new nation that the bias should be at the empirical end. The quality of these surveys is, of course, variable. But while there are many relatively poor ones, there are also some which show a high degree of statistical and observational sophistication.

Turning now to developments since independence, it is clear that the preindependence bias of Indian economists first for tackling concrete policy problems like taxation, social insurance, utility rates, foreign trade policy, monetary policy, and the like and second for empirical investigation of all kinds prepared them better than the economists of

most underdeveloped areas to be useful to the great experiment of planned development. There has been no break in the tradition of economic research but merely an acceleration and a sharper focus on the problems of growth.

First, in the theoretical literature there has been a continuation of the effort to explore the relevance to Indian conditions of Western theory. Since many of the leading economists of today were doing their graduate work at a time when the literature was dominated by the Keynesian revolution, they are much occupied with exploring the applicability of Keynesian tools to developmental problems. They, like many of the rest of us, have become aware that a theoretical model conditioned by the imperatives of the Great Depression and hence essentially short run in its outlook was of limited utility in tackling the problems of long-run growth. The Keynesian emphasis on policies to relieve unemployment and stimulate investment has a superficial relevance to two of India's most pressing concerns: the underutilization of her huge labor force and the inadequacy of her rate of capital formation. A number of penetrating articles in the Indian journals have spelled out why this relevance is only superficial. They are beginning now to examine the applicability of some more recently fashionable tools, such as input-output analysis and linear programming, but there is still something of a lag. On the level of pure theory, India has still not made the frontier contributions to the analysis of economic growth which one might hope for from a country as fully embarked as she on the experiment of consciously promoting such growth.

Possibly the reason is to be found in the fact that Indian talents are too absorbed in the fascinating issues of current development policy to permit leisurely theoretical speculation. Certainly at the policy level there is much solid work going forward. Concern with the scope and shape of the Second Five-Year Plan, now being formulated, has concentrated attention on the key policy choices inescapably raised by such a plan. An interesting if somewhat false dichotomy has arisen between the advocates of what is called "physical planning" and those who support what is termed "financial planning." It is not easy to summarize this controversy, which is partly semantic. If I understand it correctly, the "financial planners" believe in starting from an estimate of the amounts of saving likely to be forthcoming from the private sector and the public revenues which can be raised under reasonable criteria of "sound" public finance, and proceeding to the formulation of a plan to fit these magnitudes. The "physical planners," on the other hand, want to set a fairly ambitious over-all goal in terms of a desirable percentage rate of growth of real gross national product, compute the amounts of physical capital required to implement such

a program, estimate its annual cost, and then find somehow the resources to carry it out. The matching of these two procedures has led to some interesting discussion of such questions as the tolerable level of government deficits, the capital output ratios appropriate to different sectors of the economy, the marginal rates of saving to be expected or induced from increments to real output accruing to various segments of the population, and the like.

The issue of the appropriate roles of government and the private sector in development is one which is discussed more on a pragmatic than on a theoretical level. The Congress Party has adopted a resolution known as the Avadi Resolution on the Socialistic Pattern of Society which is accepted widely from the left all the way to industrialists like Mr. Tata on the right as laying down the general philosophy governing public and private participation in development. There is much discussion of the meaning of this resolution and the steps to be taken to implement it. It is virtually universally accepted (except by the Communists) that the private sector has an important role to play, at least in the short run, but that it will be regulated and controlled by the government, and that government will own and operate such facilities as private industry is insufficiently vigorous in expanding. Thus the debate reduces to differences of opinion as to what constitutes a suitable level of incentive for private industry, how restrictive controls should be, and how far government should go in entering new fields. There is little scope in this debate for considerations drawn from economic theory, and the whole discussion has a common-sense, pragmatic tone.

Meanwhile there has been an acceleration of the tradition of empirical inquiry to develop the facts on which planning could be based. Major efforts are under way under both governmental and private auspices to improve the current estimation of national income. I have already referred to the National Sample Survey, the most elaborate effort that I know of anywhere in the world to develop current national income reporting on the basis of sampling techniques. There has recently been published a Rural Credit Survey which explored, again by constructing a national sample, all of the factors which its designers believed bore on the present and future demand for and supply of credit in agriculture. The Planning Commission of the government of India has established a Research Programmes Committee of leading economists which has, through grants to universities, stimulated a variety of surveys in various parts of India on (a) land reform, co-operation, and farm management, (b) savings, investment, and employment, and (c) regional development. A Taxation Enquiry Commission has recently completed an exhaustive study on all aspects of India's fiscal structure.

In summary, Indian economics has its roots in the same intellectual

soil as American economics. It has flourished for at least thirty-five years, and has developed during that time fewer distinctively Indian characteristics than one might have expected. It has produced no great theoretical break-throughs as yet, but much sensible commentary on Western theory, particularly in recent years since Indians have been struggling with the application of Western theory to development problems. It has a strong tradition both of concern with applied policy problems and of extensive empirical and statistical study. These traditions have given India a corps of economists of a high level of competence, which gives reasonable assurance that Indian economic growth will not be inhibited by a shortage of this kind of expertise. If India is successful in achieving a self-sustaining rate of economic growth, some of her best minds may be freed from the process of guiding that growth to construct a more general theoretical explanation of why it has occurred.

THE MIDDLE EAST: ISRAEL

By DON PATINKIN

Hebrew University, Jerusalem

In order to gain a proper perspective on any aspect of intellectual life in Israel—and on the state of economic thinking in particular—one must first keep in mind three simple facts. First, the newness of Israel; second, its size; and, third, that despite the fact that its population is no longer overwhelmingly Western in origin, its intellectual life has continued almost entirely in the Western pattern.

I might at the outset also note the obvious fact that there is really no distinctively Israeli type of economic thought. Most economic work in Israel has consisted of attempts to apply Western techniques and analysis to domestic economic problems. Foremost among these problems has been that of integrating into the economy the immigrants who arrived primarily from other Middle Eastern countries and from North Africa during 1950-51 and who now form roughly one-third the total population. Indeed, the very magnitude of these problems has pressed most Israeli economists into the service of those institutions—both governmental and nongovernmental—that must deal with them on a current basis. Very few economists have been free to engage in pure economic research—either theoretical or empirical.

The exact character of economic work in Israel—and, before that, in Jewish Palestine—has been largely determined by the historical accident of the intellectual backgrounds of the people who emigrated there. Thus among the immigrants from Germany in the thirties were some economists who brought with them the training and methodology of the German historical and empirical school. Correspondingly, the work done just before and during World War II by, say, the Economic Research Institute of the Jewish Agency reflected this basic approach. It consisted almost entirely of descriptive studies of Palestine and its neighboring countries. Similarly, the immigration after World War II brought with it some economists trained in the Anglo-American tradition of economic analysis, and these have in recent years given an impetus in that direction.

Among the studies of the World War II period are those of A. L. Gruenbaum (now Gaathon) on *National Income and Outlay in Palestine: 1936* (published in 1941); and A. Bonne, *The Economic Development of the Middle East* (published in 1945) and *State and Economics in the Middle East* (published in 1948). Bonne's analysis of economic development in the region is a combined sociological-economic

one, with particular emphasis on the agrarian problem. Gruenbaum's estimate of national income is based on a final-product approach. Unfortunately his earlier work in this field did not lead to a subsequent development of continuing statistical series on national income magnitudes. Indeed, this development has been neglected until recently. In addition to their substantive contributions, all three of the studies just mentioned are of interest in being early works in fields which at the time were of concern to a relatively small group within the economic profession.

In more recent years, Israeli's economists have, naturally enough, been primarily concerned with certain aspects of the problem of economic development: on the "monetary" side, how to finance this development and how to solve the problem of the inflation which has so far accompanied it; on the "real" side, how to plan economic development in an optimum way and thereby correct the marked structural imbalance in Israel's international economic position. Less attention, however, has been paid to the problem of economic development in the broader sense. But this should not really surprise us. For, on the one hand, Israel itself is not an underdeveloped country in terms of the familiar criteria of population pressures, extremely low standard of living, general educational level, and absence of an individualistic and rationalistic approach to life. And, on the other hand, the unsettled political situation in the Middle East has cut Israel off from its neighboring Arab countries, where the problems of economic development in this broader sense do exist. Hence Israeli economists have not had the direct stimulus to study these problems that would otherwise be generated in times of peace.

Let me now say a few words about graduate education in economics. Though there are various evening schools in the country offering courses in economics, graduate training in this field is provided only at the Hebrew University in Jerusalem. The study of economics as a specialized program leading to both undergraduate and graduate degrees in economics was inaugurated here in 1949. Subsequently, in 1953, the economics department, together with its cognate departments, was organized as a separate faculty of the University under the name of the Eliezer Kaplan School of Economics and Social Sciences, and it is here that instruction in economics is given today.

The program of studies is very much in the Anglo-American tradition with, naturally, particular emphasis on the economic problems of Israel and the Middle East. Research at the Kaplan School—both of faculty and graduate students—has been largely devoted to applying economic analysis to specific problems of this region. Some of these studies have just appeared in English as Volume III of a series entitled

"Scripta Hierosolymitana," published by the Hebrew University. Others will appear in Hebrew in a series of monographs to be published by the Kaplan School itself. It is hoped that this series will become a regular one.

Most of the graduates in economics go into government work, which has until now (and probably for some time to come) provided an unlimited demand for their services. Some graduates are provided with fellowships from various sources in order to continue their studies abroad for two to three years. It having become clear that salary and language difficulties make it extremely difficult to attract competent scholars from abroad, it is to these graduates that the University looks in order to expand its staff. Such a program does carry with it the danger of inbreeding. But this is minimized by the fact that these graduates go—or are sent to—different universities abroad and so are able to return to Israel with a variety of experiences.

Another center of work in economics is, of course, in governmental and semigovernmental bodies. Thus, for example, the Central Bureau of Statistics devotes a good part of its *Monthly Bulletin* and *Statistical Yearbook* to economic series; the Finance Ministry regularly publishes its budgets and statements; the Agricultural Department carries out studies on specific problems; the Labor Ministry publishes a *Monthly Labor Review*; and so forth. For the period 1953-55, we also have the work of the Economic Advisory Staff, which was connected with the Prime Minister's Office. The recently established Bank of Israel—which is the central bank of the country—has also established a research department and has begun the publication of a *Bulletin*. Similarly, work is being carried on by such institutions as the *Histradrut* (general labor union), Manufacturers Association, private banks, trade organizations, and the like.

Despite all this work, Israel still suffers from a serious deficiency in basic and systematic empirical research work in economics. In order to help fill this gap, there was set up in February, 1954—under grant from the Maurice and Laura Falk Foundation of Pittsburgh, Pennsylvania—the Falk Project for Economic Research in Israel. In its initial period of operation, this Project has been fortunate in having the services of two American scholars: Simon Kuznets as its Chairman and Daniel Creamer as its resident Director of Research. Full details on the activities of the Project can be found in its *First Annual Report*—issued in both Hebrew and English in March, 1955. Among the studies shortly to be published are three dealing with the years 1952-53 and presenting, respectively, estimates of national income, national expenditures, and the balance of payments. The first two of these studies have been carried out in conjunction with the staff of the National In-

come Unit of the Central Bureau of Statistics. This unit will now continue to publish corresponding estimates in the future. It is hoped this will also be true for the balance-of-payments statistics. During this initial period of activity the Falk Project has also been concerned with training Israeli scholars to assume ultimate responsibility for the direction of the Project.

I have referred above to the pressure of Israel's current economic problems. I should now point out that the obverse side of this pressure is a lively and widespread public concern with the economic problems of the country. The major daily newspapers all have weekly economic supplements. There are also periodicals which devote themselves primarily to economic problems. The most comprehensive of these is the quarterly, *Riv'on L'Kalkalah*. Another product of this widespread concern is the phenomenon of every man being his own economist—exchange-rate policy, the optimum form of agricultural development, and the dangers of inflation all being proper subjects for parlor-room discussions.

Mention should also be made of the role of Marxian economics in Israel. There is an underlying basis of crude Marxist theory in the official ideologies of the various socialist-labor parties. However, these parties have made few attempts to use the categories of this theory in analyzing the current economic problems of the country. The main manifestation of socialist doctrine has been in the strong, egalitarian tradition brought with them by the early Zionist pioneers (*chalutzim*) and carried through by them to the positions of *Histradrut* (labor union) and government responsibility many of them now occupy.

If I may finally cast an eye to the future, I would guess that, as the pressure of immediate problems lessens and as the supply of qualified manpower increases, there will in the next few years be a development in both the quantity and quality of economic research in Israel. Insofar as the direction of this research is concerned, I do not think it will be in that of pure theory. Israeli economists seem to have avoided the path of least resistance which leads one to devote oneself (in Bronfenbrenner's words) to "highly-polished refinements of purely technical problems without immediate practical application." There is a strong feeling of pragmatism in Israel; there is a strong sense of the urgency of its economic problems. So though Israeli students have a highly developed interest in economic theory, their standard question is: What can we do with it and what are its implications for the problems of Israel? Conversely, when confronted in their work with these problems, they attempt to analyze them in terms of the theoretical framework with which they have become familiar.

I would also guess that studies will be made of certain unique fea-

tures of the Israeli economy: the collective agricultural settlements, which raise interesting conceptual problems for national income measurement as well as for the study of consumption and production decisions; the *Histradrut*, which is at one and the same time the largest labor union and the largest single employer in the country; the influence of an egalitarian wage policy on the differential supplies of various types of labor; the effects on the economy of a wage structure built on a rigid cost-of-living allowance; the problems of training a relatively large Oriental population in the working habits and skills of Western industrial society—and the implications of this process for the general problem of economic development. These are some of the interesting questions that await the economic investigator in Israel.

DISCUSSION

OVERTON H. TAYLOR: I have very little to say and will try to say it in a very few minutes. It is doubtful whether I have any right or business to be here at all, to discuss the papers we have just heard, for I know nothing about their subjects. Just possibly one might justify a discussion of such papers by a person ignorant of their subjects but able to raise some questions properly to be raised by the uninstructed audience. At any rate, that is all I can hope to do. Except for what I have just learned from these four brilliant and very interesting papers, I know nothing, myself, about the history or current state of economic thought in any of those Eastern countries. But I do know something about the entire past history of economics as an intellectual activity within the Western world and am full of curiosity as to what is happening to this activity in the Eastern countries into which it has been transplanted.

One point that struck me in all these papers is the apparent fact, which they seem to agree on, that nothing in the now flourishing economic thought in any of those Eastern countries is of old, native origin, independent of Western influence, or highly distinctive of that part of the world. Apparently it all consists simply of different, main parts, varieties, and developments of ordinary modern Western economic thought which have been transplanted intact into the Eastern countries and are developing further there on lines generally similar or parallel to those being followed in the West but with efforts to apply them to the problems of those Eastern countries.

Now probably, in one sense, this striking general fact is not really at all surprising. I speak in ignorance, but can well imagine that, in all probability, the old, indigenous cultures of the Eastern countries, in their own developments through the many centuries before they began to be invaded and influenced by the products of our Western culture, never included or contained much recognizable "economic thought" of any kind which could have been developed on its own lines into modern, distinctive forms of effective, usable economic theory, affording, as compared with modern Western theories, significant, alternative, or rival approaches to the modern economic problems of the Eastern countries growing out of their own native intellectual traditions. For it is my impression that probably the old native Eastern cultures were in general profoundly opposed to any high valuation either of economic activity—the pursuit of material wealth or worldly goods, in increasing abundance, by individuals or by group or communities—or of economic inquiry as the study of such activity and the conditions or requisites of the fullest success for all men, in it. Even in the development of our Western culture, through ancient and medieval times, the usually predominant, prevailing value-patterns inherent in nearly all of the culture, nearly everywhere, tended strongly to regard the pursuit of wealth beyond bare "necessaries" as a morally and socially dangerous aim and activity, to be repressed or discouraged lest it upset social order and stability and the primary devotion of all to "higher" spiritual, ethical, and cultural values; and with that went a tend-

ency to regard study of economic activity and phenomena and problems as at best a minor inquiry—and an integral and subordinate part of broad, all-embracing social, moral, and political thought; even a part of that which developed, chiefly, only as a kind of social pathology—a study of the evil consequences too likely to arise from the wealth-seeking activities of men in their societies, and the moral standards to be enforced in order to restrain those activities and prevent those evils. It is true, and remarkable, that in the medieval West, the scholastic doctors managed to produce some very respectable beginnings of real economic analysis in the modern sense, even within the controlling framework of those very attitudes or value-judgments. Still, until modern times even in the West, the development of economic thought as such was in general severely limited by the same dominant value-attitudes, inherent in the whole culture, which also limited economic development. And it is my impression—a largely ignorant impression, subject to correction—that in the old native Eastern cultures value-attitudes rather similar to those generally dominant in the premodern West were if anything even more pronounced and more fully or strongly dominant and effective in preventing both economic development and development of economic thought as such. Probably none of the old Eastern cultures ever contained, even, anything comparable to those good beginnings of economic analysis produced in the medieval West by its scholastic doctors. So, in the recent and current new period in the Eastern countries, with their awakening, under Western influence, to the importance of their economic problems and their needs for programs of economic development, they have had to borrow and try to use modern Western economic thought as the only kind available to them.

Yet it seems to me that this situation, however nonsurprising and inevitable, must create certain problems. How fully suitable for application in the Eastern countries can this modern Western economic thought be—how soundly applicable to their special economic systems, conditions, and problems and how compatible with their own national cultures in general, which must still be rather full of those old value-judgments, hostile to the expansive economic wants and ambitions which create the subject matter of economics as conceived in the modern West and thus directly in conflict, surely, with the value-judgments that as presuppositions underlie modern economics itself, as an intellectual activity? Let me briefly offer a few reflections under each of these headings: Western economic thought and Eastern economic conditions and problems as one and Western economic thought and the Eastern cultures, including their value-systems, as the other.

As far as the first of those problems is concerned, probably it would be easy to exaggerate the difficulty of adapting modern Western economic thought to effective and sound treatment of the problems of the Eastern countries. Many Western thinkers have exaggerated the alleged "relativity" of particular types of economic theory to the special, local and temporal, objective economic situations in application to which they were first developed; and the alleged needs for other novel and distinctive types of theories to fit other objective situations obtaining in other countries or other times. The truth is and always has been in the West that most economic theory has

been sufficiently abstract or general to fit or apply to very wide ranges of diverse, specific situations or sets of conditions and problems; or be readily adaptable to them all by suitable adjustments or modifications of the relevant, particular assumptions and resulting arguments and conclusions. And no doubt this versatility still fully characterizes all good modern Western economic thought and may well make it possible to adapt and apply it usefully, even to the situations and problems of the Eastern countries. Still, I wonder a little how great the adaptations or revisions may need to be in some cases and how fully the needs for these adjustments are being realized and met by the Western-trained economists now working in the Eastern countries; and I do not feel fully enlightened on this matter by any of the generally excellent papers we have just heard. I wonder, for example, how ready unmodified Keynesian economic thought can be for useful application in the Eastern countries, whose populations still can do but very little saving and whose institutional setups largely lack the institutions which, in the West, created the Keynesian severance between saving decisions and investment decisions. Must not this kind of theoretical apparatus need, for that and other reasons, a good deal of revision to make it applicable to the Eastern economies?

Or again, to take a different example, how far can Western value and resource-allocation theory of the classical or of the neoclassical kind, without extensive revision of basic assumptions and of all their consequences, fit Eastern economies, largely lacking the developed market systems over wide areas and mobilities of people and resources and strong gain-maximizing behavior tendencies and competitive conditions combined with the kind of prevalent morality required to make them socially beneficial in the main—which have all been assumed in the Western development of this body of theory? And I wonder how fully the Eastern economists, whose Western educations must often have tended to alienate them spiritually, in a measure, from their own native cultures and societies, are alert and responsive to all the special features still characterizing those societies and the economies included in them and the needs for bold revision of the Western theories they have learned to make them fully, soundly usable in application to the problems of their countries.

Finally, let me touch on my other heading: the question not of the applicability of Western economic theory to conditions in the Eastern countries, but of its compatibility, i.e., that of the value-judgments underlying it all, with the native, popular, Eastern cultures and the basic value-judgments or ideals inherent in them. Here, for example, I often wonder whether India's Hindu intellectuals—who love to criticize the West for its prevalent, low, practical "materialism" and take pride in the superior spirituality and idealism in their own native cultural tradition but who are at the same time now eager to press forward a strong program of economic development for India—are ever conscious of a psychological conflict within themselves over these issues? Possibly this problem to which I am pointing need never become too serious in practice. Here in the West, within modern Western culture, we do still have, it seems to me, a somewhat similar problem in the fact that our

capitalism and prevailing pursuit of ever rising standards of living for all and our supposed traditional devotion to Christian ethics never have been—so it seems to me—at all fully reconciled. The Calvinist or Puritan revision or reinterpretation of Christian ethics, as described by Max Weber and R. H. Tawney, has always seemed to me an outrageous caricature of Christian ethics, not the real thing at all. There has been no reconciliation of real Christian ethics with our economic life and economic thought. But we seem to get on pretty well by paying lip service to Christian ethics and carrying on our economic activities and studies of how to make them more successful—and experience little spiritual conflict in this matter—though we seem to need the services of ever increasing numbers of psychiatrists. Perhaps the peoples of India and the other Eastern countries will likewise assimilate Western economic ideas and practices and retain their own cultural traditions and manage, if not to reconcile them, to live happily without ever doing so. Yet I do wonder about this general problem and feel that none of our speakers has thrown enough light on it.

JOHN M. CLARK: If there is one theme running through the diversity of these brilliant and illuminating papers, it might start with the proposition that when the East imports Western techniques and economic mechanisms, it imports also the equally alien forms of economic thinking that go with them. And the resulting problem is: How importable are these ideas? To what extent and with what modifications are they applicable to the historically unique effort to stimulate the growth of countries economically underdeveloped, at an artificially rapid rate which is, to say the least, disquieting to contemplate? I would add: What problems are involved in distinguishing important cultural values and preserving them or maintaining cultural continuity during inevitable change?

Professor Millikan mentioned the Indian scholar who carried to rather extreme lengths the doctrine that, when means of gratification fall short of wants, the remedy is to scale the wants down to the means. I was reminded that I once received a volume of economic theory which started from the same standpoint, announcing an ideal which gave no explicit recognition even to the need to eat but, recognizing that we could not all be as perfect as this, the author spent the bulk of his volume on what appeared to be a normal Western-type utilitarian theory. I am led to wonder whether this is symptomatic of indigenous elements being displaced by imported ones and not integrated with them. Insofar as that may happen, are there dangers in the process?

It is assuming a good deal to suppose that our Western theories, in the forms in which they pass current with us, contain all the elements that are most essential as guides to the modernization of Eastern economies. As to that, it seems that a large amount of humility is in order. Somebody—the exporter or the importer—needs to ask more searching questions than might readily occur to either one, not only as to the economic ideas, but as to the prerequisites for their successful operation—prerequisites of which we ourselves are likely to be less than half-conscious. The most readily exportable

things about Western ways of economic thinking turn out to be oversimplified models of how the market mechanism would work under specified conditions as to consumer behavior, entrepreneur behavior, etc.; and the specified conditions do not probe deep enough to explain the extent to which this behavior depends on the presence of a complex set of implementing institutions and pattern-setting institutions, and back of these, the whole body of social mores, all of which converge to make the market behave (approximately) in the ways the models depict.

These things are so familiar to us that we tend to take them for granted and forget we are doing so. And this may do no great harm, so long as these preconditions of market behavior go on working in their regular fashion. But it is a different matter when Western market mechanisms are transplanted into civilizations whose preconditions are different. Things may not work as the models indicate; and it seems inherently likely that the departures will be larger than those we always have to allow for in applying our own theories to our own conditions. I suspect that, for successful transplanting, there is need for a much more explicit understanding of these underlying preconditions than the formulated theories furnish.

To be more specific, the papers we are discussing have mentioned the need for a body of capable entrepreneurs, and one speaker specified that they should be bent on maximizing profits. Presumably the truth in this proposition is that, if a country lacks a sufficiently energized body of entrepreneurs, willing to risk capital in productive enterprises because, among other things, potential entrepreneurs are not eager enough for profits, this eagerness may be needed for rapid growth. But if the available entrepreneurs, native or foreign, set out to make the highest possible profit rates in the quickest and easiest way; under Eastern conditions, this would mean exorbitant profits and restrictions of development. We Americans think that for sound and serviceable growth what is needed is entrepreneurs who will be enterprising in earning profits the hard and risky way by increasing productivity, reducing costs, and increasing volume at moderate profits under the discipline of competition rather than in the easier and, superficially, less risky way by cartelized restriction of output and sustaining of prices. Our formal theory, in most of its models, assumes the absence of monopolies or cartels but does not tell how such conditions are to be maintained—still less how they are to be developed if they do not arise spontaneously. I suspect we have no clear and certain knowledge of the answer for our own country—still less for the countries of the East.

With us, it has been an evolution of at least two centuries, in which American entrepreneurs have, imperfectly and "by and large," accepted the incentives and disciplines of competition. They have, to an extent, done what the psychologists call "internalizing" these external disciplines. During the past fifty years, they have gone further, moving on to more positive standards of constructive serviceability to community needs and ends and have assimilated these with their profit seeking. This process is not simple. It is too complex to find expression in the premises of formal theoretical models. But I believe it is a necessity for the sound survival of a system of private

enterprise in the twentieth century. The East is trying to speed up and compress what with us has taken centuries of evolution, much of it half-conscious, into decades of intensive and necessarily self-conscious effort. I am suggesting that it needs to be conscious of those necessary preconditions which our theories do not adequately and explicitly formulate.

As a footnote, what is likely to happen when and if the competitive drive for efficiency collides with nepotisms arising from the strong place of the family unit in one of the Eastern civilizations? Is the wiping out of these nepotisms one of the implications of profit maximization; and, if so, is its cultural impact something that calls for serious consideration?

One form of Western economic theory which has not, I think, figured in this meeting is the Malthusian theory with its stress on the need for limiting population. This theory seems to differ from some of the others in being more and not less applicable to the East than to the country of its origin. The East has been slow to accept and apply it, though beginnings are being made. Incidentally, it seems that the economics of limiting wants rather than increasing means of gratification serves in application as an apologia for not limiting one particular complex of wants; namely, those that take effect in increasing the population. Apparently some of the Eastern countries have succeeded in improving cultivation enough to increase yield per capita, despite an increase in population. This suggests two questions. First, how was it done? I am sure it was not by unadulterated *laissez faire* and not by Soviet-type collectivized farming but by methods involving purposive leadership, stimulation, and guidance. Second, does this improvement merely push back temporarily the limit which must ultimately be met? That last is a question to which we can hardly expect to give a definitive answer at this time.

THE ECONOMIC POTENTIALS OF LATIN AMERICA

LATIN AMERICA: RECENT DEVELOPMENTS, OBSTACLES TO DEVELOPMENT, AND POTENTIALS

By SUNE CARLSON*

United Nations

The purpose of this paper is merely to summarize some of the factual material regarding recent economic and social developments in Latin America which might be of use as a background for the discussion on economic policy lessons which is to follow. But even as a factual review it must be most rudimentary. It is, of course, impossible to map out in a few pages all the economic, social, administrative, and political interrelationships of the recent economic development in Latin America; a subjective—I would even say intuitive—selection of some of the major themes must suffice. The paper has one outstanding bias: It does not discuss investment potentials and need for foreign capital. However, this subject has been so much in the foreground in recent discussions on Latin-American economic problems that it might be appropriate to emphasize some other aspects of economic development at this particular time.

I

First a warning. Although the Latin-American countries have some features in common, they vary greatly as regards their stages of economic and social development and the problems faced within this development. Even inside one and the same country one may find great differences in these respects. Consequently, one should be most careful when generalizing on observations made in one or a few of the countries or parts of these countries; these observations may not at all apply to other parts of Latin America. The common features include much of the historical heritage with its influence on present political, social, and cultural traditions and institutions. Some of these features I shall return to later on when I talk about obstacles to economic development. Another important common feature is rapid population growth. In 1920 the total population of Latin America was around 85 million and in 1950 around 155 million; today it is estimated at 165 million. This means an increase during a twenty-five year period of more than 80 per cent,

* The writer would like to acknowledge the assistance he has received from and thank his colleagues Miss Guillebaud and Messrs. Dabezies, de Rosso, Lurie, Rivera and Wolfe, with whom he has discussed the subject of this paper quite extensively, and who have collected much of the material on which the paper is based.

while the corresponding figure for the world as a whole is between 30 and 35 per cent. If this trend continues, Latin America will have a population well above 300 million in 1980.

But the population is most unevenly distributed both as between the countries and inside most of them. If, as an indicator of population pressure, we use number of rural population per hectare of arable land, approximate calculations from available statistics show such differences as 6.0 for Haiti, 0.4 for Uruguay, and 0.2 for Argentina.¹ The urban population in per cent of total population was in 1950 pretty much the same—around 30 to 35 per cent—for thirteen of the Latin-American countries, but the figures for Haiti and the Dominican Republic were far below this level, with 12.5 and 23.8, respectively. Three countries—Cuba, Venezuela, and Chile—had a percentage of urban population of about 50, and Argentina and Uruguay of more than 60.

These figures on urbanization reflect quite well the general level of economic development. Estimates made of the national income 1952-54 per capita based on data from the United Nations Statistical Office and from the Secretariat of the United Nations Economic Commission for Latin America show the same five countries—Argentina, Chile, Cuba, Uruguay, and Venezuela—in the top group, and they also show Haiti at the bottom. The range extends from less than \$100 per capita for Haiti to more than \$400 for Argentina and Venezuela. Data on nutrition standards can only be obtained for nine of the countries—but in this respect also Argentina and Uruguay are the leaders, with a daily intake per capita (1951-52) of more than 3,000 calories (*FAO, The State of Food and Agriculture 1954*, page 153). Indices on education give a similar picture. Figures on the percentage of population ten years old and over which is literate, based on the latest postwar census, show again Argentina, Chile, Cuba, and Uruguay as a top group, to which Costa Rica also belongs. Furthermore, the first four countries mentioned have a consumption per capita of newsprint and writing paper far above any of the other Latin-American countries.² The range of these indicators of educational level goes from 10 to 87 per cent for literacy rates and 0.1 to 10.3 kgs. per capita for paper consumption.

It is obvious that such variations in population pressure, in rates of urbanization, in national income, and in levels of education give rise to marked differences with respect to obstacles and potentials for economic and social development. But the development problems of the different countries vary also with differences in national resources, in

¹ The figures for arable land are taken from *Food and Agriculture Organization of the United Nations, Yearbook of Food and Agricultural Statistics*, 1953; the figures for rural population from *Problems of Housing of Social Interest* (published by the Pan-American Union, 1954).

² Cf. *Possibilities of Development of Pulp and Paper Industry of Latin America* (Economic Commission for Latin America, 1954).

transport facilities, and in many other things. As a caution against too rapid generalizations these notes may, however, be sufficient.

II

An important feature of the economic development in Latin America during the postwar period has been its heavy dependence on imports. In the immediate postwar years, most of the countries experienced a considerable rise in investment as a result of the reopening of the sources of supply for capital goods. These imports could be financed by foreign exchange reserves accumulated during the war years when exports to the United States went on at what at least at that time was regarded as favorable prices while imports were reduced due to supply shortages in the industrialized countries. The rapid rise of capital goods imports, of the re-equipment of Latin-American industry, and of industrial production soon came to a halt, however. In spite of considerable capital imports, foreign exchange shortages began to appear, and although the boom which followed the opening of hostilities in Korea permitted a resumption of heavy imports, the continued heavy investments have made exchange controls and import restrictions characteristic features of several Latin-American economies. The improved export situation during the last year has not changed the picture. Naturally those countries which have been dependent on the export of only one or a few commodities (e.g., coffee and cotton in Brazil, copper in Chile, tin in Bolivia, and sugar in Cuba) have felt the impact of changing world demand much more than countries with a more diversified export structure (e.g., Mexico and Peru).

Another important feature of Latin-American postwar development has been the relative stagnation of food output, which has not kept pace either with industrial output or with population increases. As the rise in investment and industrial output has resulted in a growth of non-agricultural incomes, this has added to the pressure of nonagricultural demand for food. As a result, the food gap which has had to be covered by imports—Argentina and Uruguay are the only regular exporters of cereals and livestock products on the continent—has kept increasing, which under the existing foreign exchange situation has led to inflationary pressures and subsequent price-wage spirals in a number of cases. This has been particularly the case in Bolivia and Chile.

An increased mechanization of large agricultural holdings, particularly in Argentina, Brazil, and Uruguay, is in progress, and experiments in methods of helping the rural population to improve their living conditions have been going on for many years and have received considerable support from the United States bilateral technical assistance program. But low rural productivity and levels of living have become

fixed in public consciousness as an unsolved problem, which also has an important bearing on the domestic market for manufactured goods, ultimately leading to a stagnation of output in the newly developed manufacturing industries.

The burden of inheritance in the landholding field is particularly heavy, perpetuating an unhealthy rural structure which hampers economic and social progress. Indeed, an outsider might ask if the political and social difficulties to be faced in connection with agrarian reform have not been one of the factors that have led some of the countries into policies mainly favoring industrialization. No country has as yet developed agricultural schemes affecting the whole rural population as India is beginning to do in its community development program, although Bolivia may be going in this direction. Even in Mexico, which has pioneered in new forms of rural social action since the twenties, such projects as the rural cultural missions seem to have reached only a minority of the peasants.

This brings me to another feature of Latin-American postwar development. Most Latin-American countries long ago adopted social legislation and official standards for social services matching those of Western Europe and the United States. But they differ very widely in the extent to which they have been able to apply their social measures and live up to set standards, particularly among the rural majority of their population. This situation seems not to have changed during the past decade despite the favorable economic situation. The gap between standards and realities has not been narrowed and the proportion of public expenditure for social programs—specially outside the large cities—seems to have remained relatively low. The most conspicuous recent expansion in social action has been in the field of social insurance, which in its earlier stages makes funds available to the government rather than demanding new expenditures.

III

Most of the Latin-American countries are at present in a stage of development where the springs of their economic growth will have to be found in their own natural and human resources and in the effectiveness with which these can be utilized. With their rapid population increase, the human raw material should represent no problem—at least not in the long run. The natural resources seem also to be there—although there are of course significant variations from country to country in this respect. Not only is land still abundant in most of the countries, but the known mineral resources (with the exception of coal) also are on the whole sufficient to support a relatively high rate of production, and there are reasons to believe that those resources can

be increased considerably by a more systematic surveying than has thus far been carried out. Therefore, the major obstacles to economic and social development, at least for the immediate future, are to be found primarily in the factors which today hamper an efficient utilization of these resources.

Latin America shares one obstacle with all other underdeveloped areas: the scarcity of capital. There is a great need for a strengthening of existing capital market institutions and for new instruments to channel savings, especially small savings, into more productive outlets than at present. But there is, of course, also a need for foreign capital. However, as I mentioned above, this is a subject that has been so extensively treated in other connections that I do not need to dwell on it here.

Another obstacle which Latin America shares with other underdeveloped areas lies in the field of public institutions and administrative stability. Institutional development seems to have lagged behind material progress in most countries of the area. A strengthening and stabilizing of the public administration is therefore one of the most urgent tasks, together with appropriate reforms in the fiscal field. However, in order to fully understand the scope and magnitude of this problem, one must see it against the background of the past history and the present political situation of the individual countries, and such an analysis is beyond the limits of this paper. Suffice it to say that many Latin-American countries still lack a clear distinction between civil service and political bodies. Generally their local political organizations are weak and so are their local administrative machineries. This explains the concentration of the development programming on the capitals and the difficulties encountered in the promotion of local activities.

In practically all Latin-American countries there is a shortage of trained staff in the government services, and as in many other underdeveloped areas the good people that exist get so badly paid that they usually have to depend on outside part-time jobs in order to earn an adequate living. With the exception of law and medicine, the educational and in-service training facilities in the professional fields are usually inadequate. This is particularly true as regards executives and managers—both for the government service and for private industry—but also in such fields as engineering, agriculture, and forestry, development is in many countries hampered by the lack of local professional education.

Administrative procedures are generally slow and cumbersome with too much emphasis on checks and counterchecks. This fact together with a common distrust in the existing administrative machinery has favored the setting up of new agencies and government corporations.

The independent status of most of these bodies, each of which generally has its own income and expenditure budget, makes both financial and personnel planning and co-ordination most difficult.

IV

In spite of these and other obstacles, it seems that the development potentials of most of the Latin-American countries are much brighter than those of many other countries. The population pressure is—with some exceptions—not intense; land is relatively abundant, as are other natural resources. The proximity to the United States should facilitate the possibilities of foreign financing and aid.

There are many hopeful signs. Most governments have become increasingly interested in development programing both in the economic and social fields, and the awareness of the problem of balanced growth as between industry and agriculture is receiving more and more attention. With the help of the United Nations agencies, the Inter-American Statistical Institute, etc., the statistical and research services have been greatly improved. The 1950 censuses were in this respect particularly important. Efforts are being made to improve fiscal administration and procedure, and the problems of general public administration and of the status of the civil service are more and more publicly discussed.

LATIN-AMERICAN ECONOMIC POLICY LESSONS

By THEODORE W. SCHULTZ*

University of Chicago

Lessons depend upon precepts. Thus, policy lessons depend upon our policy precepts and these I shall divide into three classes, namely: received policy precepts, like the rules for trade, the functions of relative prices and of money; recent innovations in policy precepts featuring disguised unemployment, top-priority for industrialization, or beneficent inflation; and, then, I shall propose a precept for achieving economic growth, redefining and enlarging drastically the role of capital so as to include improvements in the quality of people viewed as productive agents and advances in the level of the productive arts.

To set the stage for this appraisal, it will be necessary to take some account of the major economic characteristics of Latin America. It is neither poor nor rich although the range among countries is wide. Haiti, for example, is confronted by population pressures against resources like in Asia, and the Argentine is sufficiently rich to place it among the upper one-fourth of the countries of the world.

Latin America possesses a number of outstanding advantages. Widespread and impressive economic growth has been under way in most of these countries—and nothing succeeds like success. Brazil and Mexico, with their size and diversity, represent impressive achievements. The Argentine, however, has lost its forward momentum and Chile, too, has not done as well as might have been expected in view of its fine collection of resources. Nevertheless, most countries and most parts of this large area of the world have been moving ahead substantially on the economic front.

Except for parts of the Caribbean and a little of Central America, people are not being squeezed by the viselike jaws of a relatively large population and resources which are largely nonreproducible, subject to telling diminishing returns. There is room for economic maneuver, although where the death rates have been falling rapidly the rate of population increase is now very large.

The economic complementarity between most of Latin America and

* In preparing this paper I have drawn upon much field work and upon many staff discussions that have been a part of our studies of *Technical Cooperation in Latin America*. This research project has been a major enterprise of the National Planning Association. I have had the privilege of serving as its Research Director. These studies are now reaching completion. The policy reports and some case studies have been and will be published by the NPA. The major monographs of members of the research staff are being published by the University of Chicago Press.

the United States is another major advantage. The U.S. market is not only exceedingly important for most of the exports of Latin America but, in addition, their export products are subject to fewer trade restrictions than is the case generally for U.S. imports. Then, too, the fine performance of the U.S. economy—its growth and comparative economic stability since the war—has been of major importance to Latin America as well as to the rest of the trading world. This economic complementarity may also account for the large amount of U.S. capital that has been committed in Latin America, with prospects that it will continue to increase.

Throughout much of Latin America, one observes a marked rise in effort, energy, and skill that go to make up the quality of a people as productive agents. The range among countries in what has been achieved on this score is exceedingly wide, and, of course much remains to be done. Nevertheless, the over-all progress is impressive. It may well represent the single most important development for the further and future economic growth of Latin America.

I. Recent Innovations in Policy Precepts

A number of new policy precepts have gained wide currency since the thirties. I want to consider three of these. Poor countries, that is, countries with low per capita income, it is presumed have a great deal of slack in the way they use their resources. There is supposed to be widespread disguised unemployment and that these underutilized resources can readily be drawn into full production. Another precept is based on the belief that additional labor and capital in industry have a higher productivity than in agriculture. The third holds that some inflation is helpful in reducing the disguised unemployment and in achieving industrialization. Latin America has been a major testing ground for these policy precepts. As I see it, all three have come off quite badly.

1. *Disguised Unemployment.* There is the belief that underdeveloped countries, like those of Latin America, have much disguised or concealed unemployment, that these so-called "underemployed" (human) resources provide them with a strong base from which to launch their programs of economic development, and that measures which enlarge the money supply and thus increase the effective demand will draw such underemployed resources into production.

One major variant of this belief holds that in agriculture one will find much labor at the margin with a value productivity of zero. I have examined this concept and its relevance with some care in a recent paper: "I know of no evidence for any poor country anywhere that would even suggest that a transfer of some small fraction, say 5 per

cent, of the existing labor force out of agriculture, with other things equal, could be made without reducing production."¹

What one finds in Latin America are the following: (1) Situations where some labor has been withdrawn from agriculture and where other factors and technology have remained unchanged and where agricultural production has fallen as a consequence of the withdrawal of such labor. (2) Country after country which has for one reason or another increased the money supply which, however, has failed to tap any vast block of underemployed resources but has struck inflation instead. (3) These countries have chosen to live with the resulting inflation in ways which have had some adverse effects on the rate of economic growth. I shall develop this point somewhat more later in this paper.

I certainly do not want to leave the impression that I believe that no important "factor disproportionalities" exist in Latin America. There are many, and they are important. Some have been forced by price and exchange controls to live with inflation; some have arisen from rapid economic growth itself, as in the United States with its bypassed areas and depressed sectors, e.g., agriculture and coal mining; some are based on cultural restraints that, for example, curtail the economic opportunities open to the Indian population (Mexico being in this respect, one of the Indian countries which is largely an exception); some are rooted in land tenure arrangements; and some, as in the Argentine, have been the result of the particular brand of economic folly in which the government of that country indulged. However, merely increasing the money supply is not the appropriate corrective for such factor disproportionalities. This surely is one of the major lessons to be drawn from recent Latin-American experiences.

2. *Top Priority for Industrialization.* Among the recent innovations is the widely held policy precept that in order to achieve an optimum rate of economic growth every underdeveloped country needs to give top priority to industrialization. This precept, also, is based in the main on the view that the value productivity of the labor in agriculture is not only much lower than in industry but that some of it is zero.

But there is no factual support for the view that the marginal productivity of labor in agriculture is zero. It may be and has been as high and higher than it is in industry. Of some relevance is the fact that the terms of trade of most agricultural products which the countries of Latin America normally export have been much more favorable than they had been during the thirties. Many a Latin-American country in striving for industrialization not only has seriously neglected its agri-

¹ See my paper, "The Role of Government in Promoting Economic Growth," read at the 25th Anniversary of the Social Sciences, at the University of Chicago, November 12, 1955.

culture but has taken measures which have had adverse effects upon agriculture and in the process the economic growth of the country has been impaired and with it the magnitude of its national product. Mexico and Peru are probably exceptions. Bolivia, also, is not neglecting its agriculture. The record of both Brazil and Chile is far from satisfactory on this score. The Argentine has so impaired its agriculture that it has brought its entire economic growth to a standstill. Fortunately, most of the (small) countries in the Caribbean and in Central America have escaped this particular short-sighted policy precept.

3. *Beneficent Inflation.* This precept has received support from two quite different ideas. One holds that in order to draw underemployed resources into full production a little, gentle inflation will always prove helpful. The remarks which we already have made on disguised unemployment should raise serious doubts that such is the case. The other idea holds that a chronic inflation can be institutionalized and once this has been done the inflation will be virtually neutral in its effects on the allocation of resources. The long history of inflation in Brazil and Chile and the economic growth which these countries have achieved with inflation have been cited in support of this view.

I have ventured the judgment that Chile is now foregoing between a fifth and a fourth of its normal output because of what it has done in its efforts to live with its inflation resulting from its vast, chronic imbalance in governmental receipts and payments (my paper already cited). Living costs rose eighteen fold from 1939 to 1954. Even so, inflation need not give rise to resource malallocations, even in the case of inflation as drastic and chronic as that of Chile. All could go well with flexible product and factor prices and flexible exchange rates and with interest rates attuned to the declining value of money. What would occur then may be represented as a special tax on money and near money. However, where there is such inflation the government feels compelled to act and when it does, it undertakes measures which impair the flexibility of prices and which restrict trade. Resource malallocations soon emerge and, as in the case of Chile, they have become exceedingly important.

The observed inflations in Latin America have not corrected existing factor disproportionalities. They have instead created new ones that are large and serious. It may be argued that most inflations in Latin America have not been sufficiently gentle. They have been anything but that since, say, 1939. In major countries like Brazil and the Argentine, the cost-of-living index had risen seven times or more by 1954; in Chile by eighteen times as already noted; and in Mexico—much the best among this group of major countries—somewhat less than five times. Other countries run: Peru six times, Columbia four

times, and then a group more akin to the inflation experienced in the United States of about two times with Panama and Venezuela about the same and with Costa Rica and Uruguay a little over two and a half times. Then there is Bolivia at thirty-two times and Paraguay in the vanguard with a consumer price level fifty-three times as high in 1954 as it was in 1939.

II. *Received Policy Precepts*

In concentrating on the problem of mass unemployment during and after the thirties, economists either put aside or appeared seriously to undermine what had been received policy precepts. The role of product and factor prices and of trade were placed in a secondary position and the monetary role of central banking was neglected, whereas income was elevated to the key position. Meanwhile, surely since somewhere during the forties, high levels of production and of employment have characterized the countries that are part of the Western trading world.

It is understandable why these older, once well-established, policy precepts were discarded throughout so much of Latin America during the period under review. These countries were simply following the lead of the major Western countries in this respect. We need to remind ourselves that central banking has been rediscovered only recently in the United States, Canada, and in Western Europe. While factor and product prices are again allowed to function over a wide area, especially within countries, there are still important exceptions, especially in international trade.

Meanwhile, the signals are being changed. A fully employed economy calls for a return to the older set of signals; and Latin America will in all probability follow suit. From what I have already said in examining the several policy precepts which I classed as "recent innovations," it should be abundantly clear that Latin-American countries have strayed far from the old policy fold (and so did the United States). In Latin America the road back, now that many vested interests have been established in these "innovations," will be hard and difficult; but there are indications that the will is emerging, both private and public, to return to what I have called "received policy precepts" in national housekeeping where economic policy counts.

III. *To Achieve Economic Growth*

What, then, may we learn from recent economic experiences of Latin-American countries about economic growth? Not much, so it seems to me, with the theorizing about economic growth now so prevalent. Economic concepts developed to understand the mass unemployment of the thirties, concentrating on aggregate income, savings, and invest-

ment, have come to burden our thinking about economic growth. Disguised unemployment is not the equivalent of mass unemployment and, accordingly, the same by similar treatment will not work. This treatment has not worked for reasons we have already elaborated. Savings have come to be thought of as an increasing ratio of income as income rises (the proportion of income saved increasing the higher the level of income); and, thus, poor countries have even a smaller proportion of their income available for additional capital than do the rich countries. This proposition about savings is certainly not established despite all of the statistics that have been collected to prove it. Then, too, theorizing about economic growth has come to be based on the belief (assumption) that capital narrowly conceived, namely, where it is restricted to the stock of reproducible goods, is the fundamental variable. (Here, again, let me refer to my paper of November 12, 1955, already cited.)

How, then, are we to account for the observed economic growth throughout so much of Latin America? Surely not from drawing upon large blocks of resources that were formerly underemployed. If anything, "factor disproportionality" has become greater because of economic growth per se and because of the malallocations in resources that have arisen from measures to live with inflation. Most parts of Latin America have benefited appreciably since, say, 1940 from better terms of trade in what their exports have been buying for them. But many of these countries have restricted the scope of international trade in which they participate and thus they have reduced the extent of the market and the division of labor it will support. Nor will the returns they have obtained on investments in industrialization account for any large part of the observed economic growth. Some of these countries—for example, the Argentine—have impaired seriously national output by ill-conceived industrialization. In others it would appear that the rate of return on industrialization has been relatively low.

It is my belief that the observed rise in per capita output in Latin America is on the same footing as is the remarkable economic growth of the United States. Most of the rise in output in either the U.S. or in Latin America cannot be explained by additional given doses of reproducible capital goods and of labor. Most of it has come from increases in the output per unit of reproducible capital and labor employed. The per capita output of the United States rose at a rate of about 1.9 per cent per year (compounded) of which only about one-tenth is ascribed to the rise in the stock of tangible capital, according to Fabricant.² The rest of this remarkable economic growth may be represented as coming

² Solomon Fabricant, "Economic Progress and Economic Change" (a part of the 34th Annual Report of the National Bureau of Economic Research, May, 1954). Tangible capital here consists of structures, including housing, equipment, inventories and net foreign assets, but excluding consumer equipment, military assets and land and subsoil assets.

from increases in output per unit of input of labor and of such capital.

Such fragmentary data as there are for Latin-American countries indicate the same pattern. In Mexico, for example, the relatively large crop producing sector increased its output 60 per cent from 1925-29 to 1945-49, using, however, only 27 per cent more input; thus output per unit of aggregate input rose by 26 per cent. Farm production in Brazil was 55 per cent larger in 1945-49 than in 1925-29. The input index rose only 30 per cent; and, accordingly, output per unit of aggregate input increased 20 per cent.⁸ Other bits and pieces of data point in the same direction.

I recently proposed that the concept of capital be drastically re-defined and enlarged, as it seems to me to be necessary, to get at its role in economic growth. This formulation is as follows: Economic growth is some function of three basic variables, each determined (presumably in large part) by the amount of effort and capital allocated to its development; that is, to increase its magnitude. These variables are the quantity of reproducible goods, the quality of people as productive agents, and the level of the productive arts. In addition, a larger market increases the output per unit of input and becomes a special factor in this process. These variables and the effect of changes in the size of the market must then be cast in a framework which takes account of whatever diminishing returns occur as a consequence of the nonreproducible factors and the drag that these place on economic growth (as set forth in my paper of November 12, 1955, already cited).

This extension of the concept of capital greatly enlarges the role that capital plays in economic growth. However, at this stage I must look upon it as a working hypothesis. I shall need more time to determine how meaningful it can be made operationally, whether it will permit one to classify, organize, and analyze the recent economic experiences of Latin-American countries and, then, see what its predictive properties are like.

Let me say, however, that what I have observed in Latin America is that a great deal of effort and capital are being allocated to programs which improve the quality of people as productive agents through health services and education—both the most elementary and in depth, e.g., knowledge about nutrition and better housing—and, also, to programs which raise the level of the productive arts; e.g., universities with more emphasis on the sciences and technology, research institutes, agricultural experiment stations and agricultural extension services, and the like. I venture the guess that the rates of return on what is

⁸ Clarence A. Moore, "Agricultural Development in Mexico," *Journal of Farm Economics*, February, 1955; Clarence A. Moore, "Agricultural Development in Brazil" (unpublished TALA paper, No. 54-044, September 29, 1954, University of Chicago).

being put into these programs, which improve the quality of people and raise the level of the productive arts, are much higher than are the rates of return on capital used to increase the stock of reproducible goods. A few Latin-American communities appear to have come off much better than have most of them in allocating capital among these three basic variables underlying economic growth. I am inclined to place Mexico and Puerto Rico high and Argentina (the last ten years mainly) and Paraguay low on this score.

The several point four programs—those supported by the U.S., the UN and its specialized agencies and the OAS and the work of the foundations, notably that of the Rockefeller and Kellogg Foundations and the agricultural, health, and educational projects of U.S. religious groups—have made substantial contributions, precisely in these areas. Moreover, the work of these agencies, especially in agriculture, has offset at least in part the overemphasis on industrialization that has plagued some Latin-American countries. It should also be noted that business may be by all odds the most important single carrier of useful knowledge relevant to raising the productive arts.

To sum up, then, what have we said about policy lessons and policy precepts? The economic experiences of Latin-American countries during the last fifteen years or so cast doubt on policy precepts based on disguised unemployment, industrialization whatsoever the cost, and on beneficent inflation. Received policy precepts—particularly those pertaining to the monetary role of central banking and to the functions of relative prices including international trade—were more appropriate to the circumstances than were some of the economic policies which were pursued. Despite it all, however, most parts of Latin America have experienced substantial economic growth. To account for this growth, I have proposed that the concept of capital be greatly extended. My hypothesis is that economic growth depends upon the allocation of capital to three basic sets of activities: those which increase the quantity of reproducible goods, those which improve the quality of people as productive agents, and those which raise the level of the productive arts. The optimum rate of economic growth is realized when the rates of return from each of these activities are equalized, given the capital available for these purposes. Whether the economic achievements of Latin America and also of other countries are consistent with this hypothesis and whether it will have useful predictive properties are still unfinished business.

DISCUSSION

GEORGE GARVY: Dr. Carlson's and Professor Schultz's papers are largely complementary, and, I believe, in substantial agreement with respect to their conclusions. Professor Schultz wants to redress the balance between the over-emphasis on fixed capital formation and the human factor, or, as he calls it, "the quality of people as productive agents," while Carlson stresses the importance of institutional factors in economic development.

The significance of human and institutional factors is being increasingly recognized by those who come to grips with the practical problems of formulating development programs in Latin-American countries. The concluding section of a recent IBRD report on the agricultural development of Colombia, for instance, contains the following statement:

It must be recognized that capital is only one element contributing to economic growth, and that its productivity depends on the quality and quantity of the other factors. . . . Skilled management, the availability of qualified technical personnel and adequate support from governmental organizations are as essential as the mere availability of machines and other capital goods. Investment, in particular in modern machines, is capable of yielding the highest returns only if combined with sound management, associated with properly trained labor and operating in conjunction with government institutions which provide the appropriate guidance, support, protection and incentives. It is the present inadequacy of these elements, as much as the shortage of capital, which is handicapping Colombian agriculture.

But I think that there is more in the two papers than the mere recognition of the fact that fixed capital formation is a necessary but not sufficient condition for the economic development of Latin America. Dr. Carlson refers to obstacles to economic and social development, while, in discussing the efforts made to improve the quality of people, Professor Schultz contrasts Mexico and Puerto Rico with other parts of Latin America. I believe that both papers imply clearly that the problem of economic development in Latin America, as elsewhere, cannot be regarded as being primarily an economic problem.

Therefore, while I share many of Professor Schultz's misgivings about the three policy precepts which he has singled out as representing "recent innovations," I feel that their main shortcomings lie in the failure to diagnose the problem correctly. In many cases, in dealing with problems of economic development, institutional and historical obstacles stressed by Dr. Carlson have been more or less disregarded. Also, sufficient attention has not been given to the possible social consequences of attempting to draw resources into production through a "beneficial" gentle, and not so gentle, inflation. And, as suggested by Carlson, the popularity of industrialization schemes with the dominant landowning groups of some countries of Latin America might have something to do with the fact that development of modern forms of agriculture might require changes in land ownership and farm management that could endanger the traditional basis of their political power.

I am very sympathetic to Professor Schultz's call for a return to economic orthodoxy and stronger reliance on the effectiveness of central bank policy, but I wonder whether here again we are not facing the problem of necessary

but not sufficient conditions. My recent experience in Colombia has convinced me, for instance, that the paradox of overcrowded mountainsides and empty valleys, familiar since the Currie report, cannot be resolved in time merely in response to market forces.

I am saying "in time," because I feel that in our discussion of economic development we must introduce a time dimension. The example of countries which have achieved a greater degree of economic progress and a wider sharing of its benefits is bound to create, and has actually created, pressures in those countries which have been lagging in initiating a policy of economic and social development. If the principal institutional obstacles discussed by Dr. Carlson are not overcome within a reasonably short time, population pressure and other factors, which I cannot discuss in detail, might create a serious situation in several Latin-American countries.

Development is another word for change, and change tends to produce conflicts of interest and tensions which may lead to eruptions that result in destruction of both fixed and human capital, as happened, for instance, in Colombia in a not too distant past. In any case, we should not become victims of a development optimism. In spite of the evidence of widespread economic development in many parts of Latin America, there are also alarming signs of stagnation and of a paralyzing inability or unwillingness to recognize the necessity of synchronizing economic progress with institutional and administrative changes. Even a cursory examination of the economy of Latin-American countries over the last decade indicates that in each case there has been increase in production, development of economic institutions, and a substantial, although uneven, increase in the level of technology, in particular in agriculture. And all this in spite of the widely divergent policies pursued. Even though the pace of economic development has been very uneven, one can perhaps venture the forecast that further progress will be achieved in the years to come, almost irrespective of the policies pursued.

Both papers raise the question of how to appraise economic achievements of individual Latin-American countries. We need to develop a frame of reference for appraising the progress made and perspectives for further development in individual countries. Indeed, in the world that has emerged from World War II, economic development has become the professed policy goal in most countries and territories of the three underdeveloped continents. Too frequently, economic development is measured in terms of aggregate measure of production and income, without proper consideration of balance. By balance I mean not only the sort of interindustry balance stressed in much of Professor Nurkse's writings but also balance in terms of the distribution of the benefits of economic progress among the various groups of the population.

There is also the problem of balance over time. Frequently, spectacular short-run progress can be achieved by neglecting to allocate resources for laying the groundwork for long-range development. Again, the example of Colombia might be cited. For my part, I am more impressed by the inability of the overwhelming majority of school children in the rural areas of Colombia to get more than the equivalent of one full year of schooling than

by the fact that Colombia has put into operation an integrated steel mill, built against the advice of most foreign experts.

The recent cotton boom in several Central-American countries and in Peru suggests still another approach: Is the rate of growth achieved sustainable, in particular when it is due to special, perhaps fortuitous, circumstances, such as the current U.S. farm policy?

Another way of obtaining a perspective is by comparing potentialities and resources—and this was perhaps in the mind of the organizers of this meeting. I take it that the main point of Professor Schultz's paper is that the most valuable resource of Latin America, its labor force, is underdeveloped. Indeed, in most countries, pitifully little is being done to develop the human resources. But the obstacles to the development of this resource are essentially institutional rather than economic. When Professor Schultz referred to the cultural restraints which limit economic opportunities, he cited the Indian population outside Mexico as an example only. In most Latin-American countries such constraints affect almost the entire rural population, perhaps with the exception of Costa Rica and a few other areas, and large groups of the urban population as well. Incidentally, I wonder whether in mentioning figures on the per capita paper consumption of newsprint and writing paper Dr. Carlson meant to suggest to use them as some sort of an index of the rate of development of human capital.

By placing formation of fixed capital in the proper perspective and by stressing the noneconomic factors in the process of economic development, both speakers have rendered a signal service to the profession. If the prospects of economic development of Latin America depend primarily on non-economic factors, it is indeed the duty of economists to say so rather than to produce theories explaining why their earlier precepts did not work. And when the right precepts become the cloak for wrong policies, as in the management of foreign exchange reserves in several Latin-American countries, let us recognize that even the right economic precepts will bring progress only if applied within a proper framework of political and administrative institutions.

EMILIO G. COLLADO: Both of our speakers have reminded us that the economic potential of Latin America continues to offer a great challenge. In his very suggestive paper, Professor Schultz has referred to the economic complementarity between the United States and Latin America. A recent study by the Economic Commission for Latin America shows that, in 1953, the Latin-American countries shipped 45 per cent of their exports to and obtained 53 per cent of their imports from the United States. By contrast, only 9 per cent of exports and 12 per cent of imports were accounted for by trade within Latin America.

This pattern has two implications for public policy. The first is that the United States must keep its market open to the products of the Latin-American countries. The second is that there is little merit in the suggestion that the Latin-American countries should form a trading community. Such a proposal implies discrimination against the United States and others and

would demand a degree of co-ordination of economic policies which is not yet in sight in Latin America. It would tend to increase the cost of Latin America's imports and to restrict the volume of trade.

Dr. Carlson has described some of the postwar trade and exchange problems which have confronted the Latin-American countries. Professor Schultz has indicated their close relationship to internal policy, which in recent years has been occupied to an extraordinary degree with the goals of economic development, diversification, and industrialization. As he has pointed out, programs to achieve these goals have often been based on incorrect assumptions and have in considerable measure miscarried. The result has been extreme inflation, leading to pressure on the balance of payments, which governments have tried to contain by exchange control. Experience in these fields makes it clear that government intervention in economic matters has been excessive, a conclusion forcefully expressed by Mr. Pedro Beltran, of Peru, in the current issue of *Foreign Affairs*.

Latin-American countries have economic resources and opportunities that are unexploited and little known. In such situations, flexibility in the economic structure is desirable. Plans for economic development that are too precise and detailed are almost certain to go awry, simply because too little is known about the factors that from year to year will affect the problem. If initiative is exercised at a great number of points, the exploratory process necessary to achieve the optimum allocation of resources will be facilitated.

Because of its flexibility and the freedom it provides for innovation, the private enterprise system is the best pattern for the economic organization of the developing Latin-American countries. However, quite aside from this basic premise, I would suggest that comprehensive planning would be bad policy because, as Dr. Carlson mentions, there simply are not enough technically qualified people to devise and carry out the programs involved.

With this limitation in mind, it becomes all the more important for the Latin-American governments to stick to essential government functions. Few will now deny that governments—in Latin America or elsewhere—have a vital role to play in promoting economic development. It is vital to promote education and public health. Professor Schultz has pointed out that the national economy will reap excellent returns from this effort. It is a necessary government function to collect taxes and to plan and execute an appropriate monetary and fiscal policy. The latter is the most difficult task of all, and its successful execution demands a flow of accurate statistical information which is not yet available in Latin-American countries.

These basic needs are likely to require most of the administrative talent available to the public services, leaving very little that can be devoted to intricate trade schemes and elaborate development programs and enterprises run directly by the government itself. This is an important part of the truth of Professor Haberler's recent statement that planning is a luxury which only the most advanced countries can afford.

If the basic tasks of government are well done, private business will move into many of the areas which government now finds so tempting. Circumstances which thus favor the local businessman will also attract the foreign

investor. Dr. Carlson has preferred to omit from his discussion the role of foreign capital. While Professor Schultz has dealt mostly with problems of internal policy, his paper has definite relevance to the foreign investment problem. He has made the suggestion—to my mind a very significant one—that most of the increase in production has come from increases in the output per unit of reproducible capital and labor employed and only a small fraction from the rise in the stock of tangible capital. This reminds us that the qualitative as well as the quantitative aspects of investment, domestic as well as foreign, are very important.

In discussions of the role of the foreign investor, too much attention has been focused on its statistical dimension. Here we might note parenthetically that the economic role of the foreign investor tends to be understated in the official statistics of the Department of Commerce, which net out reinvestment of depreciation funds, sale of going investments to local interests, and similar items. To note an example, Department of Commerce data show a net increase in petroleum industry investment in Latin America by only 4 million dollars in 1954. In that year, my company alone actually spent 176 million dollars on plant and in the search for oil in Latin America. Next year, out of total similar expenditures of 1.2 billion dollars our program in Latin America will require well over 300 millions. I venture to suggest that these gross figures are the more significant indicators of impact on economic development.

Professor Schultz's point serves to emphasize the contribution of the foreign investor in management and initiative. As a carrier of technology, new to the economy, direct foreign investment plays a leading role. Even more important is the translation of managerial techniques from one country to another. A third contribution, perhaps less often mentioned, is in the broad sense a cultural one: the introduction of new attitudes within the private business system. It has been alleged that private business within Latin America pursues high profits and dividends at the expense of broad sales volume and that the Latin-American investor hoards his funds or invests them unproductively. The approach of the United States investor is surely different, emphasizing a wide market and constant reinvestment for growth. We may note that this is the characteristic pattern of the drive for bigness and that, in developing economies, it is surely a blessing rather than a curse.

SIMON ROTTENBERG: I read Mr. Schultz's paper to say in its central core that economic growth in Latin America can be explained by the investment which has occurred there in human resources and that many public policies forged on other premises have been either neutral or negative in their growth effects. I think this is correct and do not want to take issue with it and I shall, therefore, merely amplify his argument, adding, as it were, a bit more fat to his paper.

Every community, having made its decision on the quantity of current consumption it will defer to the future and the extent to which it will produce goods and services in roundabout ways, then decides the proportions in which it will allocate invested resources among alternative objects. These

decisions are, of course, an aggregate of public and private decisions. The behavioral principles for determining an optimal distribution of investment are clear in economic theory: on the assumption of diminishing returns from investment, the quantity of resources given to each investment use is carried to the point where the marginal yield in each use is equal. If, as Mr. Schultz suggests, we compress all investment objects into three classes—reproducible capital, human capital, and the state of the productive arts—then the aggregate returns from investment will be largest if the marginal returns to investment in each of these classes are equal. If the state of the productive arts is thought to be a function of the stock of knowledge in any community, even these three can be compressed into two.

When resources are devoted to the improvement of the quality of the human agent, one or more of three classes of change take place. The physical structure of people changes, so that, perhaps, their duration of life is lengthened, or their capacity to exert instantaneous or sustained energy is increased; or they acquire superior skills in, for example, dexterity of movement or perception of spatial relationships; or they conquer and command more knowledge. Of these three, the conquest of knowledge is surely the most important determinant of economic progress.

In a seminal note in the 1944 *Journal of Political Economy*, Frank Knight said: "In a superficial view it seems reasonable to think of knowledge of the world as exhaustible, in something like the sense of mineral deposits. . . . Under this assumption, investment in knowledge would be subject to diminishing returns. . . . On the other hand, it is believed that the advance of knowledge is cumulative at an increasing rate, that new discoveries open up more presumptively solvable problems than they solve." And he concluded, in what seems to be a lamenting parenthesis: "(I know of no discussion of cost in relation to return in this field.)"

Since all about us we see that investment is distributed among many purposes and that it is not all concentrated in the production of knowledge, it is reasonable to assume that, beyond some point, it becomes less advantageous to invest in knowledge than in some other object and, from this, we deduce the classical solution to the optimizing problem: the equation of marginal yields from investment for this and all other purposes.

Mr. Schultz ventures the guess "that the rates of return on what is being put into . . . [the improvement of] the quality of people and [raising] the level of the productive arts [in Latin America] is much higher than are the rates of return on capital used to increase the stock of reproducible goods." I think, too, that this is so, but I hasten to add that a significant contribution can be made by someone who will devise and apply a test that will convert this intuitive judgment (or its opposite) into an empirically verified observation. Assuming for now, however, that the guess is a right one, it means that the Latin-American countries can increase their rate of economic progress by investing proportionally less in physical capital, and more in improving the quality of their people and in enlarging their stock of knowledge.

There is in Latin America, however, a strong tendency to run the other

way. Physical capital goods are tangible objects. They can be seen by everyone to be monuments to progress. Knowledge is a more subtle thing and its good effects can be easily said to be derived from other causes.

But the policy-makers cannot claim exclusive possession of the neglect of the quality of people, of capital invested in them, and of the discovery and diffusion of knowledge; the economists are also rightful claimants. Mr. Knight's failure to find any discussion of cost-yield relationships in investment in knowledge is an index of the inattention into which this field has fallen among economists. It deserves better treatment and especially in the explanation and prediction of growth.

If progress has been rapid in the United States and if income per head has been higher here and in Western Europe than in most other parts of the world, I think a large part of the explanation lies in the spread of education and of technical education in particular and in the relatively large proportion of resources devoted to the discovery of knowledge and to its diffusion.

We could use a number of different indices as rough measures of the quantity of knowledge in a country. The extent of illiteracy, the percentage of school-age children attending school, the percentage of adults who have completed x years of schooling, and the percentage of the gainfully employed who are in professional and technical occupations suggest themselves. By any of these tests, the Latin-American countries rank very much lower than, say, the United States, and I think this goes a long way in explaining income differences between the two.

In the United States in 1950, for example, professional, technical, and kindred workers were 8.3 per cent of the labor force; in the same year, they were 7.1 per cent in Canada, 3.4 per cent in Costa Rica, 3.3 per cent in Venezuela, 2.1 per cent in Nicaragua, 1.7 per cent in El Salvador, and 0.9 per cent in Honduras. Large as these differences are, they still understate the magnitude of the difference because in the Latin-American countries primary school teachers contribute much more heavily to the number in the whole class than they do in the United States and because, measured by the average number of years and the quality of the training they receive, they are, on the average, of much poorer stuff than North American teachers.

Indeed, if we break away from the whole class of professional, technical, and kindred workers the subclass of workers in science and technology, the differences between Latin America and the United States become very great in magnitude.

Given the number of people in any community with professional and technical skills, still another optimizing problem appears. These people are distributed among employments in which they either create and discover knowledge, or apply it, or diffuse it. This problem, too, of course, has the conventional solution of equation of returns at the margin.

The different distribution among these employments which has occurred in the United States and Latin America is another piece of evidence in the explanation of the secular differential rates of economic growth in the two places. It has been estimated that in 1952, 1 per cent of the national product of the United States was devoted to research and development work; i.e.,

to the discovery of knowledge. Research in Latin America is, on the other hand, still a highly uncommon phenomenon. If it were not for the international flows of knowledge which tend to correct for relative abundance of it in some countries and scarcity in others, the difference in the size of the stocks in these countries would tend to become progressively larger.

All this suggests that policies appropriate to the closing of the income gap between Latin America and the richer countries are those which improve the quality of human resources by increasing the skills they possess and the knowledge they command.

Mr. Schultz implies that not enough attention has been given to this policy in Latin America and that reliance has been put upon precepts of policy which he thinks are false. I should like to conclude with a brief comment on false precepts.

The intellectual community of the Latin-American countries is small but influential, and it makes itself powerfully felt when policy is written. It is a community which feels itself to be devoted to the public interest, but it holds to notions that, when translated into policy, depress income and welfare. What characterizes these notions? First, xenophobia, or the belief that there is nothing good and useful to be learned from foreigners; and its complement, nationalism, or the conviction that reproducible raw materials grown in the country should first satisfy the national market before any are permitted to be exported and nonreproducible raw materials should be used in the country and should not be exported, lest the country be left with "holes in the ground." Secondly, distrust of market mechanisms for arbitrating conflicts of economic interest, or the heaping of controls upon controls at what seems to be a geometrically progressive rate, a belief in "fair prices," and the conviction that success in the market place is had at the expense of the community, and that the degree of success is a measure of the extent to which the community has been exploited.

Some of the policies Mr. Schultz has characterized as being false have their genesis in these prejudices of the intellectual classes, and governments which really want to serve their people's interests are forever having to resist their blandishments.

THE ECONOMIC POTENTIALS OF AFRICA ECONOMIC DEVELOPMENT IN TROPICAL AFRICA

By WILLIAM A. HANCE
Columbia University

The West is today faced with the tremendously challenging problem of assisting the peoples of the world's second greatest continent in bringing their economic, social, and political status closer to the levels prevailing in the rest of the world. The successful outcome of its efforts is of great import, not only to this largely undeveloped area, but to underdeveloped areas elsewhere and to the more advanced Western nations themselves. The willing adherence to the free world of African nations, when they achieve self-government, will depend in considerable measure on the work that is being done today and that will be done in the next few decades. A brief examination of the state of present economic development, of the potentialities of advance, and of some of the obstacles will reveal the multitude of ways in which physical and social scientists, commercial and financial organizations, governments, and others may help in this staggering and exciting task.

Although common denominators may be found in all the countries of Africa, Mediterranean Africa and the Union are sufficiently unique to justify their exclusion from the present discussion, whose focus is upon the remaining great, tropical, underdeveloped area of the continent. This region of eight and one-quarter million square miles covers about 70 per cent of the continent. Except for Liberia and the Federation of Ethiopia and Eritrea, it is composed of nonself-governing territories, though the Gold Coast, Nigeria, and the Sudan are rapidly approaching independence and the Central African Federation may not be far behind.

Tremendous cultural, physical, economic, and political variation and contrast exist within tropical Africa—greater variety than on any continent but Asia. Generalizations must be accepted with this caution constantly in mind.

Present Status of Economic Development

Tropical Africa is in transition to an exchange economy. There are relatively few areas and peoples who have not been affected in some way by the march of economic penetration. Most of the area, however, remains scientifically unknown. Base topographic maps, geological and soil surveys, meteorological studies, censuses of population, and other

statistical compilations are woefully inadequate, though great progress is now being made in improving this situation.

We do know that traditional systems of cultivation and grazing, characterized by low production per man and low productivity per acre, prevail over the larger part of the Tropics. The rates of illiteracy, incidence of disease, infant mortality, and death are pathetically high. The continent stands out with glaring prominence on the American Geographical Society maps depicting distribution of disease and areas of human starvation.

Average incomes for most countries range from \$30 to \$70 per capita per year (*National Income Statistics, 1938-50*, UN, 1950). From 65 to 75 per cent of the total cultivated area and about 60 per cent of the male population over fifteen years of age are devoted to subsistence production (*Enlargement of the Exchange Economy in Tropical Africa*, UN, 1954). In 1953, tropical Africa accounted for only about 3.7 per cent of the value of free-world exports (*UN Statistical Yearbook 1954*, 1955).

There is, however, considerable evidence of growth. Before the war the area accounted for only 2.4 per cent of free-world exports; so the 1953 figure represents a 54 per cent improvement. From 1950 to 1955 there has been a 55 per cent increase in the value of exports (*Review of Economic Activity in Africa, 1950 to 1954*, UN, 1955, page 68). The 56 per cent rise in value of imports in the same period reflects both higher consumption levels and a greatly increased investment in developmental programs. Intratropical exchange has also increased, notably in the supply of food to the deficit rain forest areas.

A substantial part of the improvement in the export picture stems from the higher value of raw materials. Volume of national export trade has usually increased by one-fourth to two and one-fourth times the prewar level. Exports whose volume has increased significantly include, in the agricultural field, peanuts, cotton, palm oil and kernels, coffee, tobacco, and rubber, and among the minerals, where more spectacular increases are seen, industrial diamonds, cobalt, manganese, bauxite, copper, lead and zinc, tin, columbite, and uranium ore. The Congo is estimated to have produced in 1953, 57.8 per cent of the free-world output of uranium ore (*Belgian Trade Review*, January, 1955, page 25).

In agriculture, output is estimated to have increased by about one-third from prewar years to 1954 and the Food and Agriculture Organization predicts, perhaps too optimistically, an output 52 per cent above prewar levels by 1956-57 (*State of Food and Agriculture for 1953, and 1954*, FAO, Rome, 1953, 1954).

A considerable expansion in industrial output may also be noted,

though percentage figures are misleading in view of the low level of development. Consumption of energy increased three to five times from 1937 to 1953 in the more important countries, but per capita consumption of energy is still usually only 2 to 7 per cent of the free-world average. Only Southern Rhodesia stands out with a per capita consumption 59 per cent of the average.

In industry, Southern Rhodesia and the Belgian Congo have made the most significant advances. Southern Rhodesia has some development in all major categories of industry, including the basic production of iron and steel. There are now over 724 manufacturing establishments employing about 10,000 Europeans and 60,000 indigenous workers, and the gross manufacturing output in 1952 was estimated at 155 million dollars. Industrial production in the Congo increased from 1947-49 to 1953 by 301.2 per cent. The food industry occupies a predominant position in manufacturing, though output of textiles, chemicals, and construction materials has expanded greatly.

Most manufacturing in tropical Africa is concerned with the primary processing of agricultural, forestry, and mineral raw materials. Industries catering to the domestic market are poorly represented and widely scattered. They include, especially, establishments producing high-bulk, low-value items such as cement and bricks, beer and carbonated beverages, steel windows, furniture, and metal drums. Textile and clothing plants, based upon low-wage labor and protection, are found in many territories.

One of the striking results of developments in Africa is the very rapid growth of urban centers—a growth accompanied with many economic and social problems to which inadequate attention has thus far been given. Greatly increased governmental activity, growing trade, and expanded industry are largely responsible for rising urban populations, although an indeterminate number of Africans have been attracted to cities by the same intangible factors that have contributed to urbanization elsewhere.

There are striking contrasts in the rate of economic advance from territory to territory and within individual nations. There is no continuous frontier, but rather a series of economic "islands" in which the bulk of the economic output is rather highly concentrated. These islands are often separated by great spaces where an exchange economy is poorly developed. Almost all of them may be classified under three headings: the littoral or peripheral areas, which owe their importance in considerable part to ease of access and proximity of shipping points; the highland areas, where superior soil and climatic conditions are attractive and which include the areas of European farming; and, thirdly, the mining centers or regions.

These distinct and separate economic islands combined make up perhaps 4 per cent of the area of tropical Africa but probably account for at least 85 per cent of the value of produce entering world trade. Although this suggests that there are tremendous opportunities for increased production simply by enlarging the present areas of concentration to embrace adjacent areas with similar physical attributes, it should not be taken to imply that there are large areas of high quality just waiting to be opened up. I would hazard a guess that the economic map of Africa fifty years from now would continue to display this same islandic pattern.

In assessing the developments under way in tropical Africa, it is well to note the changing relative position of the continent in the world. For centuries, Africa was more important as an impediment on the route to Asia than as an area of economic interest. Opportunities seemed far more attractive in other parts of the world, and even after partition of the continent, economic penetration remained meager for several decades. Two world wars and a world-wide depression further delayed progress. After World War II, however, Africa looked entirely different, particularly to the metropolitan powers of Europe. To a high degree, it became the focus of their interests. Its strategic, political, and economic importance appeared to have burst forth rather suddenly and even ominously. Contributing to the formation of new concepts regarding the continent, in addition to the loss of former territories in Asia and the rise of nationalism in the third great tropical area of Latin America, were the growing needs for food and for agricultural and mineral products, the desire to produce "dollar-savers" and "dollar-earners" within each nation's monetary bloc, the effort to offset the threat of anticolonialism, and the changing attitudes toward underdeveloped peoples, which were earlier applied to depressed areas in the domestic scene and which call for the state to assist more actively in their development.

The awakening will of Africans themselves is a factor of rapidly increasing significance. Though relatively few areas may now be said to have reached the "self-starting" stage, the marked expansion in educational facilities, coupled with the great demand for learning, reaching almost pathologic levels in certain areas, suggests that the African will be contributing to his advance far more effectively than in the past. He will also be doing much more of the direction.

Potentialities of Development in Tropical Africa

In briefly analyzing the potentialities of economic development in Africa, I shall focus primarily upon the physical attributes and limitations of the area. At least for many years, physical factors will largely

condition the possibilities for development; cultural, social, economic, and political circumstances are of greater significance in determining the speed with which the potentialities may be realized.

There is a very great deal to be learned about the physical milieu of middle Africa, and as additional knowledge becomes available and new technological advances are made, continuing re-evaluation will be required. Only the more important points can be noted in the following analysis; detailed, rigorous studies of individual regions would reveal the many nuances and exceptions to the broad generalizations made.

Topographically, Africa is the "plateau continent," and the scarp zones which lie behind the narrow coastal plains have presented a formidable barrier to penetration. Streams which are characterized by high seasonality of flow, by the presence of rapids in their lower courses, and by mouths where entry is impeded by shifting river and off-shore bars have further contributed to the problem of gaining access to interior areas. Away from the coasts, movement overland is often further obstructed by scarps and in East Africa the two great rift zones are barriers of immense proportions.

The land-form disadvantages should not be exaggerated, however. They were more significant as repelling forces in early penetration. There are now an increasing number of good to excellent ports on both coasts. Along the West African bulge, where surf and lighterage ports were formerly so important, there is an impressive list of modern establishments: Dakar, Conakry and the postwar lagoon-harbor of Abidjan in French West Africa; Bathurst, Freetown, Takoradi, the building port of Tema, Lagos, and Port Harcourt in British West Africa; and Monrovia in Liberia. Proceeding down the Atlantic, Douala, Pointe Noire, Matadi, Luanda, and Lobito are first-class ports, though the Congo's Matadi has access problems and has often been highly congested in postwar years. On the shorter Indian Ocean front, Lourenço Marques and Beira in Mozambique, and Mtwara, Dar es Salaam, and Mombasa in East Africa are fairly well spaced, although, again, port facilities have not always kept up with the rapidly increasing traffic. Road building and railway construction in tropical Africa is an expensive business, but it is not only the topography that makes it so. Lastly, it is easier in the long run to overcome the land-form handicaps than it is to meet the problems occasioned by other physical conditions. New roads and rail lines and improved port facilities reduce to a very considerable degree the dimensions of the topographic problems.

Among the physical elements, climate probably has the greatest influence in retarding the present economic advance. About two-fifths of tropical Africa is steppe or desert where inadequate or unreliable precipitation condemn the area to over-all low productivity. At least a

third is savanna country, with adequate rainfall in the high-sun period but with violent seasonality and, again, undependability.

Thus far, man has had very little success in controlling climate and, as near as we can tell, these vast areas will remain regionally poor areas for many years to come. However, there are notable possibilities for some relatively large-scale control efforts and for a multitude of smaller efforts. As examples of large-scale irrigation works, one can cite the Niger Office on the interior delta of the Niger River and the Gezira Scheme in the Sudan, both of which can be greatly extended. Other projects can be placed along the Gambia, Senegal, Tana, Rufiji, and Zambesi Rivers and in the Lake Chad basin. Lesser projects would include control of flow in smaller streams and wadis, the digging of *hafirs* or surface-scoured reservoirs, the further tapping of underground aquifers, and bunding of vast flattish areas to reduce run-off and increase soak-in in the rainy season. High powered earth-moving equipment makes many transformations feasible today that were impractical a few years ago, and technological improvements may be expected to bring other control schemes within the realm of economic possibility.

New farming systems will further increase the potentialities of steppe and savanna areas. *Harig* cultivation is an example. This involves the saving of old grass and stubble for burning shortly following the new rains; the burning kills off new shoots and the desired grain is planted thereafter. This grain may then be left until harvesttime while livestock owners graze their beasts in other areas. This, or some other type of farming which would make provision for storage of dry-season fodder, would greatly upgrade the capacity of large, seasonally-dry areas.

Some fairly extensive areas of savanna and steppe are now covered with swamps, and the excess of water invites an effort to bring them under control. Much investigation will be required before their proper utilization can be known, but vast areas such as the Bahr el Ghazal region of the Upper Nile and the Bangweulu and the Okovango Swamps may one day be important agricultural areas. In Northern Rhodesia alone, the six largest swamps total 13,754 square miles, or 6 per cent of the country, while numerous *dambos* and *vleis*, smaller areas of impeded drainage, are found throughout the area. The potentialities that would arise from low-cost desalinization of sea water and low-cost power to pump the sweet water onto the land stagger the imagination.

At the other extreme, possibly 12 per cent of tropical Africa is troubled by excessive precipitation, though the indirect effects of heavy rainfall are probably more disadvantageous than the amount itself. In the rain forest areas, possible advances include the use of mechanical trench-diggers for improving drainage and the use of other equipment for cutting out mangrove trees and bunding the resultant fields for

cultivation of rice. Efforts are being made along this line in Sierra Leone.

The areas where climate, taken alone, may be said to be relatively favorable under present techniques may total only 12-15 per cent of tropical Africa, but this is an area almost a third the size of the United States.

The picture with regard to soils is less encouraging. One of the greatest problems facing Africa is how to preserve the fertility of the poorly-structured and leached lateritic soils which cover most of the rain forest and savanna areas. Indigenous systems of shifting cultivation may represent an excellent adaptation to soil conditions when there is adequate land but become precarious and destructive when population pressure forces a shortening of the fallow period. Palliatives include composting, litter-farming, cover-cropping, green manuring, application of artificial fertilizers, emphasis upon tree crops, and the use of deep-rooted bushes which coppice rapidly. The deep roots bring needed minerals to the surface while the bushes may be burned to supply ash in what is essentially a modification of the usual forest-fallow system.

The best solution to this problem of soil degradation may be the development of a mixed agriculture, in which animals would supply the restorative manures, but this must await the solution of other physical problems, particularly control of the tsetse fly which carries trypanosomiasis and precludes keeping cattle in most rain forest and savanna areas. It hardly seems necessary to point out the intimate interconnection of many of the physical problems besetting Africa.

The prairie, black earth, and brown earth soils of Africa also present problems, and cannot be compared in quality with soils of the same names in the middle latitudes. Another great disadvantage is the generally meager distribution of rich azonal soils, while soil erosion is a problem of immense proportions in many regions.

Certain features pertaining to the natural vegetation are frequently listed as deterrents to development. The native grasses are often highly silaceous, harsh and unpalatable to quality animals. Improvement may be expected, however, by the introduction of better grasses and by gradual bettering of existing species. Elimination of uncontrolled and poorly-timed grass burning and adoption of proper stocking practices are important programs for grassland regeneration.

The rain forest, which has been considered more of an economic liability than an asset, now promises to be much more valuable. At least thirty species of trees are now regularly accepted in the world market, while mahogany has declined sharply in relative importance. Really significant strides are possible by new developments permitting the pulping of mixed tropical woods. Successful operations in the pilot

pulp and paper mill near Abidjan in the Ivory Coast suggest that tropical rain forest areas may become a major source of these products in the future. The increased use of tropical woods for plywood or pressed wood may also be expected.

Health and disease problems reach tremendous proportions in tropical Africa, affecting man, plants, and animals in sometimes direct but often complex ways. It is impossible adequately to summarize the situation here, but we can say, from the standpoint of potentialities, that great progress has already been made and even greater progress may confidently be expected in attacking this great problem. More sanitary living conditions, better dietary standards, widespread spraying, and development of preventative inoculations are likely to mean, in fact, that the major problem will be improving the fertility of the soil as rapidly as the fertility of man.

Most of the physical factors thus far outlined have more important bearing on agricultural potentialities than upon development of mining and industry. A brief survey of the power and mineral resources of middle Africa will be helpful in evaluating potentialities in these fields.

In the field of power resources, the outstanding facts are the relative poverty of good grade coal and of petroleum and the wealth of water power and uranium ores.

There is some coal of coking quality now mined at Wankie in Southern Rhodesia (2.6 million tons in 1953), and low-grade coal is mined in Nigeria, the Belgian Congo, and Mozambique. Coal deposits are also known in Tanganyika, Northern Rhodesia, and Nyasaland, but the general shortage of coal must be listed as a major handicap to transportation and to industrialization.

There are signs of petroleum in the Gabon basin of French Equatorial Africa, the Niger basin in Nigeria, in Somaliland, Ethiopia, Mozambique, and Angola, while a substantial reservoir of natural gas is reported from the Sahara. But most of the continent is composed of basement rock where petroleum and natural gas will not be found.

The redeeming feature in the energy field is possession of the greatest water power potential in the world. About two-fifths of the continent's potential is in the Belgian Congo and perhaps one-fourth in French Equatorial Africa. At present, there are relatively few hydroelectric developments,¹ but in the future some of the greatest projects on the continent will be concerned with harnessing this resource. The Kariba Gorge project on the Zambesi is under way, the Volta Scheme in the Gold Coast may soon be approved, and the Belgians are beginning an intensive study of the lower rapids of the Congo.

¹ Developments that exist at present include the Owen Falls Dam on the Victoria Nile, harnessing of the Konkouré, the Sanaga, and the Djouré in French Africa, and of the upper branches of the Congo in Belgian Congo, where 95 per cent of electric energy is supplied by hydro sources.

Possession of some of the world's greatest known reserves of uranium ore may give significant leverage in decades ahead to assure a relatively early introduction of nuclear-electric plants. The energy picture, then, shows exciting possibilities, but the great variation from place to place, the unfortunate location of many of the reserves, and the shortage of coal are restrictive factors, particularly for the introduction of the iron and steel industry, which is still the foundation of a modern, integrated, industrial complex.

Iron ore, the second major raw material for iron and steel, is mined in tropical Africa at Que Que, Southern Rhodesia, in Liberia, French Guiana, and Sierra Leone. Except for Que Que, the ores are exported and are not well situated with regard to coal. Other iron ore deposits are known, and those in Tanganyika and Mozambique are close to low-grade coal.

Tropical Africa has a wealth of other mineral resources. Among the nonferrous metals, it may soon become the chief producer of copper, and there are good to excellent reserves of lead, zinc, tin, bauxite, asbestos, and gold. In ferroalloys, it is an important producer of manganese, cobalt, chromium, vanadium, and columbium ores. Prospects for the future appear bright because much of the area remains to be thoroughly surveyed and because large reserves remain in the existent bodies, while some sizable bodies are known that have not yet been opened up. Greater significance probably attaches, however, to the sale of these ores and metals to provide funds for development than as raw materials for African industry. Smelting and refining are important segments of manufacturing in many territories, but there are very few examples of secondary processing of metals and there are not likely to be many for years to come.

In concluding this section, four points should perhaps be stressed. First is the great force of the physical environment in Africa, which impresses students from all disciplines who examine the continent. Second, is the great need for intensified research. Third, is that the solution of many nonphysical problems must await the solution of these basic, scientific difficulties. Lastly, it will take time, perhaps a long time, to find solutions to many of the problems noted. Here is one of the great dilemmas of the African scene: political and population pressures often call for speed; the physical environment and the need for time for adequate scientific research repulse it. Nonetheless, it is quite obvious that an output far in excess of the present level is possible, and indeed practicable, with known techniques.

Some Obstacles to Economic Development

With a broad conception of the potentialities in mind, it is possible to develop very briefly some of the problems and obstacles in the path

of African advancement. Space prohibits exposition of most of the obstacles, including the absence of well-developed transport and distributive systems, inadequate power production, lack of statistical, economic, and social information, inadequate supply of investment capital, quantitative and qualitative labor shortages, and the whole broad range of problems in the social, cultural, and political fields, which are closely interwoven with the more directly economic problems. The human problems include some that are probably far more difficult to resolve than those in the economic and physical fields.

One great problem requiring note is the imbalance between population and resources in many African areas. The population of tropical Africa is about 140 to 150 million, making an over-all density of about 17 to 18 per square mile—meaningless figures in view of the great variations in carrying capacity and in actual densities. It is all too often assumed that Africa suffers from lack of population, when actually very considerable areas are overpopulated. Most of the desert, discontinuous belts in the western Sudan and along the Guinea coast, many of the highland areas, the Victorian Plateau, Ruanda-Urundi and adjacent parts of the Belgian Congo, and Nyasaland show evidences of strain. Increasing rates of natural growth threaten to place other areas in the same category. These densely populated areas contain some of the most serious actual and potential problem areas of Africa. They may appear to cover a relatively small part of the total area, but the numbers of people involved are a far higher percentage of the total population.

On the other hand, areas such as the two Rhodesias, the Congo Basin, and French Equatorial Africa could probably be developed more rapidly with a larger population. In these areas, a low density has necessitated a wasteful system of migrant labor, limited the development of a domestic market, made more difficult the construction of transport and public utilities, and led to serious problems occasioned by excessive migration of able-bodied males from the farming communities.

There are, however, certain real advantages in a relatively low population. When labor is plentiful and cheap the temptation is strong to use it poorly. One sees Africans in these areas cutting grass lawns with knives, mining with pick axes, and building roads by hand. Where labor is scarce, more attention is given to the productivity of the individual African, laborsaving equipment is employed, and there is greater possibility eventually of achieving a standard well above the peasant level. Certainly, it is far easier to set ambitious goals in areas like the Congo than it is in southern Nigeria, where an increasing population constantly presses against the available resources.

A second broad problem of imbalance is the rate of agricultural advance as opposed to other occupations. The output of food in Africa is not adequate to meet the needs of the present population; the rate of expansion of food production in the past six years has been below the world average; large areas that should and could be surplus food producers are becoming more important deficit areas. Unless agricultural supplies become more elastic, advances in other fields will be increasingly impeded, as will the organic growth of the economies involved.

Contributing to the serious dimensions of this problem, in addition to all the physical problems and population pressure upon the land already noted, have been an overemphasis on cash cropping in some areas and an excessive migration of men from tribal areas in others. In the Rhodesias, for example, from 40 to 70 per cent of the males are absent from many rural areas, resulting in a deterioration in the *chitemene* system of cultivation, an unbalanced diet in the home community, and an inadequate supply of domestically produced food in the mining centers. Greater attention must be given almost everywhere to indigenous agricultural development.

In conclusion, the obstacles to economic development in tropical Africa are impressive in their variety and weight. Everything needs doing all at once. But the challenge is glorious and imperative, and the potentialities permit aiming realistically toward far higher standards than prevail today.

AFRICAN ECONOMIC DEVELOPMENT IN CROSS-CULTURAL PERSPECTIVE

By MELVILLE J. HERSKOVITS
Northwestern University

The problem with which we are faced in considering economic development in those parts of the world outside the Euro-American cultural orbit, is, in essence, a cross-cultural one. In economic terms, it involves devising models for economic growth applicable to societies where the basic psychocultural assumptions that guide behavior and dictate values differ from the society in which existing models have been developed. For if economizing implies the allocation of scarce means to socially desired ends, then to focus on the alleviation of existing scarcities through improved technology and greater capital resources while neglecting to determine the acceptability of the values implicit in the ends in view is to invite the frustrations that have been the concomitant of programs of economic development the world over.

This fact has not gone unrecognized by economists. Williamson notes the importance of the intangibles constituted by pre-existing values in these terms: "If we assume that the increase in income has been distributed so that no one has less real income than before (and some have more), few would question the assumption that welfare had been improved." But, he asks, "what conclusions can be drawn if the first assumption regarding unchanging tastes is relaxed?" After pointing several possibilities, he concludes: "If, for any reason, people derive more satisfaction from their current real income, they will be better off." (H. F. Williamson and J. A. Buttrick, editors, *Economic Development, Principles and Patterns*, 1954, page 11.) In sociocultural terms, this means that in a society previously having nonpecuniary patterns the increased resources deriving from economic development based on a money economy will have significance only if a concurrent adaptation of values and goals to the new system takes place. In somewhat broader phrasing, it would signify that the imposition of economic institutions in a society where they will lodge in a cultural matrix different from that in which they developed, and in which, perhaps, they are actually dysfunctional, will lead to unexpected if not unfortunate results.

N. S. Buchanan and H. S. Ellis, defining "underdevelopment" as "poor economic performance as evidenced by the comparatively low average of consumption and material well-being of the people," point out that "what real incomes these factors . . . of production . . . will

yield in combination depends upon the whole social and cultural environment within which economic activity is pursued." (*Approaches to Economic Development*, 1955, page 4.) They go on to say: "Despite more capital equipment or the demonstration of better production methods, no rise in output will occur if the socially accepted goals or the culturally accepted values assign little importance to material achievements, such as greater production. . . . In other words, although greater output will be impossible without more capital and improved techniques, the mere provision of these does not assure that output and material welfare will increase." (*Ibid.*, pages 74-75.)

In the actual planning of economic development, however, general acceptance of the importance of this point of view has come slowly. It has taken the disciplining of experience—most dramatically seen in the failure of the East African Groundnut Scheme—to bring any degree of understanding of the fact that for technology or agriculture or economics or public health to go it alone is to court disaster. That the lesson has been learned in some areas is demonstrated in the planning for the Volta River Hydroelectric and Aluminum Scheme of the Gold Coast. Here, for two years, a team of investigators has not only been studying the technological problems involved but has also been concerned with such human factors as the displacement of communities and their reestablishment, the means of providing labor and assuring a stable labor supply, and with questions of housing, feeding and health. Nor has the need to present the plan to the people concerned been overlooked—the carefully drawn models of the new lakes, new port and new industrial installation that toured the Gold Coast; the brochures, printed in the native languages, that explained the advantages that would accrue as a result of the development.

This, however, is the exception. In the main, plans for economic development show too little regard for the multiple, particularly the cultural, factors involved. If they are drawn by those on the ground, they tend to emanate from government bureaus, where the inertia of past methods prevails, even when the good will toward the indigenous peoples is unquestioned. If international organizations or metropolitan governments are concerned, the techniques of the visiting mission of experts is employed. In either case, an assumption that the people of the territory to be developed can be manipulated, that they are passive elements in the situation, is implicit in the thinking of the planners.

Now it is a commonplace that innovation, at any level, necessitates readjustment. Other things being equal, the intensity of readjustment will be in direct proportion to the magnitude of the innovation and the pressure applied to assure its acceptance. Yet this is not the whole tale, since other things are rarely equal. There are two other elements

in the situation which, though they have become apparent to students of cultural change, have not attained comparable recognition outside anthropological circles. The first of these derives from the principle that any innovation, no matter how far-reaching its implications and how great the pressures for its acceptance, will be projected against existing cultural patterns and will consequently undergo a process of reinterpretation to bring the new cultural elements into consonance with the total way of life of the group. This principle of psychocultural reinterpretation holds whether the innovation has far-reaching or lesser implications; and it holds whether the pressures exerted for its acceptance are direct or indirect. The second factor derives from the principle of cultural inertia, which means that a situation of cultural change will involve resistances to change as well as these reinterpreted acceptances. We will be grossly mislead if we are content to view cultural inertia as a passive phenomenon. Any serious imbalance in the cultural congruity of what is newly added to the culture may set in motion resistances of widest scope.

Let us consider some instances of how this works in contemporary Africa. These could be drawn from all fields of life, as for example, the political, where in the current drive for a federated state in the Gold Coast we find that resistance to the innovation of parliamentary democracy by a people whose pre-existing patterns of chiefly rule were challenged has created a situation which can only be resolved by re-interpretations that will reconcile the two systems. Or, as another example, we could take the changes affecting the position and work of African artists. These readjustments have not only resulted in a widening of the media in which they work, to include such innovations as water color and ceramics, but also a reorientation of objectives from those associated with the religious and magical ends for which much of what they carved was used, to a secular, pecuniary motivation, under which the artist produces for the art market, much as do the painters and sculptors of Euro-American society.

Turning more particularly to the economic aspects of developmental schemes, however, we may consider, in broad compass, three examples. The first of these concerns individual saving as a means of providing, on the national scale, resources for increasing the capital structure. The second encompasses the problem of motivating labor so that, with an increasingly integrated and expanding productive system, there will be a stable force responsive to the essential discipline of regular and continued effort. Third is the question of the need for the growth of a middle class.

Approaching this first question, we may recall the obvious point that saving by the individual derives its social and psychological sanction

from the patterned desirability of deferring the satisfaction of immediate wants in favor of longer term desiderata. This is so deep-set in Euro-American thinking that its historical recency and cultural particularity are rarely called to mind. Yet in societies such as those of Africa, it is a revolutionary concept. This is not only true in the eastern part of the continent where money was unknown but also in the Congo and West Africa, where the use of tokens of value of various kinds long antedates European contact. For, in terms of African patterns, individual saving in the European sense is rendered unnecessary by the patterned and explicitly defined reciprocal rights and obligations of the social unit. Whether this be a major lineage of the order of the clan or a minor one, such as a local kin-group or extended family, resources for the satisfaction of individual wants derive from the effort of the group as a whole. For the African, the measures for social security necessitated by the fragmented, individualistic nature of Euro-American society derive from the resources of the larger kinship organization that provides manpower to help him accomplish tasks too great for himself alone and cares for his wants when he has passed the age of productive labor. It must further be pointed out that these benefits entail complementary obligations. This is why one of the most difficult problems in this sector of the changing economy is how to reconcile the obligation to make personal wealth available to fellow kinsmen with the need for Africans to increase the level of their personal savings.

Thus, in balancing the plusses and minuses in aboriginal custom as these bear on the attainment of the desired ends, the Mission of the International Bank for Reconstruction and Development, in its report, *The Economic Development of Nigeria* (1955, pages 21, 22), speaks with approval of the "strong local loyalties" of Nigerians and the possibility of building a co-operative movement on this traditional base. Yet, on the other hand, it debits the fact that these loyalties do not cause the same canons of morality to apply to outsiders as they do to fellow members of a given grouping. "This is reflected," they state, "in many instances of apparent disregard for personal rights and private property, flouting of oral or written contractual obligations and exploitation of one Nigerian by another." They also make the point that "the need for self-help is not understood by the African business-man who looked to the government, and the government alone, for financial assistance in the expansion of his business instead of joining with others in a partnership or other form of common enterprise."

The relation of these presumed deficiencies to pre-existing social patterns, however, is nowhere explored. The explanation given fails to note the existence of this question, much less provide suggestions for

the resolution of what, to the Mission, was a basic conflict. Rather the explanation proceeds, with serene disregard for psycho-cultural factors, to dismiss the problem of the need for self-help, for instance, by stating that "the heavy reliance on government is . . . to some extent explicable as the response of a people still under tutelage and exposed to the complexities of European culture." No one would deny the relevance of these points. But one may well ask why pre-existing attitudes toward the rulers the present government has displaced were ignored as contributing factors. The relationships between the individual and his kin and local groups (which among the Ibo, for example, have resulted precisely in setting up various "forms of common enterprise" no less involving private partnership relations whose absence the Mission deplors) may have gone unrecognized, because they take forms dictated by the traditional modes of social structuring.

The problem of the motivation of labor in terms of adapting old patterns to the demands of a new kind of discipline has been much discussed.¹ The relation of motivation to the expression of wants through increasing opportunities for access to a wider variety of commodities is obvious, as is its relation to the tradition of saving for a rainy day. The point is clearly expressed in the Agricultural Productivity Committee's supplement to the report of the Uganda Development Council (1954):

Although factual data on the subject are imprecise, there are indications that in many parts of the Protectorate African cash income exceeds expenditure. . . . The incentive therefore for the majority of farmers to increase their cash incomes is limited; leisure and time for social intercourse . . . are more valuable to them than money after their limited cash wants have been met. The family system in the rural areas still provides security against old age so that there is little need to save even on that. According to the information given to us, the average peasant works from three to four hours a day and, until the general pattern of his wants can be changed, this is not likely to be much increased.²

Insofar as industrial production is involved, urbanization is the answer most often given in Africa to the problem implicit in the passage just cited; in the case of agriculture, the introduction of large "schemes" of various sorts or mechanized co-operatives. Logically, all these would seem to strike at the root of the matter, which is the social identification of the individual with the communally organized group. Yet the logic works but tenuously. Even in those urban centers where local housing authorities, as a matter of policy, see to it that pre-existing tribal or local groupings do not form by discouraging people of the same tribal or regional affiliation from living together, such persons do,

¹ Cf., among others, W. E. Moore, *Industrialization and Labor* (1951); "Economic Motivations and Stimulation in Underdeveloped Countries," *International Social Science Bulletin*, 1954, pp. 367-476.

² Uganda Protectorate, *Report of the Agricultural Productivity Committee*, 1954, paragraphs 51-52, pp. 30-31. The phrasing in the next to the last sentence is to be noted, in the light of the earlier discussion of assumptions underlying the work and findings of economic development planners.

nonetheless, maintain contact in groupings based on the common past. And insofar as exposure to new commodities is supposed to stimulate demand and thus motivate the worker to stay on the job, what seems in too many cases to result is that money for a limited objective—taxes, a bicycle, a sewing machine, metal roofing for a house—having been earned, where the worker does not return to his village, indifference to the job sets in.

This is not intended to suggest that the African has not responded to the new system, or that a reinterpretation of the new discipline in terms of pre-existing motivations and demands on resources cannot be worked out. It may be that the indifference of the African to sustained employment for wages is due to factors extraneous to both pre-existing pattern and recent development. Certainly, the factor of opportunity is operative. One need only compare the reactions of Africans in British West Africa, where opportunities are maximal, with those in certain eastern, central, and southern Africa industrial situations, where they are minimal, to see this clearly. There can be little question that this is one explanation, for example, for the more than 100 per cent annual rate of labor turnover among African workers in Cape Town. This is a variable, which, granting adjustments on the sociocultural level, nevertheless intervenes powerfully to prevent the desired result from being achieved. Yet even where opportunity is not denied, the need to reconcile the values of an industrial, mechanized effort with those of a communally-oriented peasant or handicraft system of production presents a major challenge to the attainment of the objectives of economic planners in underdeveloped countries.

The third point—the development of a middle class as an instrument of economic growth—has been much less discussed than the two preceding topics. Even in general works on economic development, it tends to be dismissed as a phenomenon associated historically with the growth of industrialism in Europe and America, not as yet manifest in underdeveloped areas, certainly not in Africa. Yet, it is in principle recognized that, as an instrument of economic and political policy, the middle classes have played an important role which in due course they should be expected to play elsewhere.

This was apparent, for example, in the papers presented at the London meetings of the Institute for the Study of Differing Civilizations, in September, 1955. Thus, on the political level, a Portuguese speaker, expressing the "principal aim" of the colonial policy of his country as "total cultural assimilation," stated: "It appears really necessary, for any population wishing to draw another population of different culture to its ways of life, to rely on a special class, the intermediate class, which discards its original culture, but accepts the mis-

sion of spreading the new habits." (Adriano Moreira, "The Formation of a Middle Class in Angola and Mozambique," INCIDI, *Development of a Middle Class in Tropical and Sub-tropical Countries*, Brussels, 1956, page 235.) On the economic side, speaker after speaker stressed the role of the middle class in underdeveloped areas in leading the native population toward a European standard of living and, by example, stimulating economic activity through creating wants whose satisfaction can be achieved only by the purchase of European-type goods.

There can be little question that the middle class must play a significant role in a society whose technological and economic structure is being directed toward the establishment of Euro-American patterns. It would, at the very least, be reasonable to conclude that its place in African development would be important to the degree that this followed the pattern of European and American economic growth. Its function as a stabilizing factor in the rapid pace of urbanization has been officially recognized by the Belgians in the Congo, as manifest in housing and welfare programs for the native inhabitants of those growing cities. On the political level, it is argued that a middle class of urban residents, with their vested interests, will provide a bulwark against too rapid change in the event of agitation for self-government. Statistics show that between 1951 and 1954, the number of enterprises controlled by Africans showed more than a threefold increase, rising from 856 to 2,661; that in 1954, among the 265,652 African inhabitants of Leopoldville were 7,070 independent enterprises, of which 4,526 involved trade in foodstuffs, including 1,694 food shops (Raymond Bertiaux, "Les Classes Moyennes au Congo Belge," *ibid.*, pages 201-202).

It is beyond the scope of this discussion to attempt a definition of the concept of the middle class—a hazardous undertaking at best. Far too much time would be required to permit even a brief review of the traditions of land tenure, of ownership of wealth, and of other aspects of the pre-European economies of Africa that might justify the conclusion that a middle-class psychology is by no means alien to African societies. The question raised here is merely this: Granted the inevitable working out of the results of the impact of Euro-American technology and economic organization on African society must result in a greater degree of specialization of labor and a concomitant realignment of social groupings, what socio-psychological reinterpretations will issue to make the African societies of the future?

In the African areas closest to self-government, which under any definition have an African middle class of entrepreneurs and intellectuals, many of whom are familiar with European ways, the ascription of this new status has by no means resulted in their acceptance of all the implications of their new position. African social structures are not

disintegrating, and it does not follow that the African businessman by virtue of his entrepreneurial efforts becomes the exponent of individualism, rejecting the claims on him of the kinship group to which he belongs. The prestige of European ways, as in the case of any ruling group, which evoked in many Africans during the early days of contact the desire to master and emulate them, tends on closer examination to be transmuted into an evaluation of these ways by the Africans of today. In this is clearly visible a patterned triad of selective acceptance by direct incorporation, of acceptance by reinterpretation, and of rejection. Lacking adequate studies in depth, the question of specific cultural items in each category cannot be answered, but the drift in the responses of the Africans concerned toward re-examination and re-evaluation seems clear. The danger on the practical as well as on the research level would seem to lie in the assumption that the lines of Euro-American development, in this as in other phases of life, must necessarily be followed in an industrialized Africa.

This brings us to our central problem. At the outset of this discussion, the problem as posed was the need to devise models for economic growth in economically underdeveloped areas that would be fitted to the realities of the societies where they were to be operative and not to set up programs on the basis of existing models. Perhaps the most difficult thing for planners—and students as well—to fit into their frames of reference is that what peoples under tutelage learn from their tutors is continuously being projected against their own pre-existing cultural background; that however simple a technology and an economic order may be, they exist as hard psycho-cultural facts; that no people present a historical *tabula rasa* on which the planner from outside may write as he will.

Some examples which show how models have dominated thinking in shaping recommendations concerning African economic development may be mentioned briefly. The first—the report of the IBRD on Nigeria—has been criticized by P. T. Bauer on the ground that in analyzing occupational specialization, the internal indigenous patterns of trade have been left out of consideration, and the “establishment, extension and improvement of agricultural holdings as a form of investment” have been disregarded (“Is the World Bank Right about Development?” *New Commonwealth*, February 21, 1955). It would ill become one not an economist to inject himself into a technical controversy such as this. It should be noted, moreover, that the second point has been specifically answered by John H. Adler (“Nigeria’s Development: Is Mr. Bauer Wrong?” *ibid.*, May 30, 1955). The non-recognition of the relevance for the economic picture of these internal patterns of indigenous trade, both in the report and in Adler’s articles

as well as the other points in the report referred to earlier in this paper, does make it clear, however, that the model which dominated the thinking and recommendations of the Mission was that of a European-type economy and that concern with adjustment to pre-existing African patterns was minimal in drawing findings and recommendations.

Yet this is also true of Bauer's *West African Trade* (1954), which, while taking indigenous trade and other factors into account, quite disregards the logic of politics and history in favor of the logic of the economic model which dictates his thinking as economist. In this case the model is equally clear, as it is in the case of another notable analysis, the *Report of the East African Royal Commission, 1953-55* (Cmd 9475)—sufficiently clear, that is, to permit both works to be discussed in the periodical *West Africa* under the title, "Adam Smith in Africa." For Bauer, with his eye on the stimulation of trade, the fact that an increase in the number of foreign traders might produce political and social conflict does not enter. For the Royal Commission, the inevitability of the imposition of European patterns of individual ownership of land was an overriding consideration, despite the analysis they give of existing concepts of the nature of land tenure held by the native peoples concerned. Yet does communal ownership of land necessarily inhibit a drive to improve individual holdings? (EARC *Report*, page 51.) One need but consider the improvements of the land of the cocoa growers of the Gold Coast, title to which is vested in the larger commonalty, to query the applicability of the model. Or where, as in the aboriginal cultures of East Africa, cattle are primarily a prestige good and an indication of wealth, but rarely traded, will more "facilities . . . for savings and rural investment," in the words of the Uganda Committee on Agricultural Productivity, necessarily divert resources from the purchase of more cattle, which have become "banks on hooves"? (*Report*, paragraph 62, page 31.) I can but recall a ranch in the Belgian Congo, deep in the highlands west of Lake Kivu, visited last September, whose owner, a Swiss, makes a substantial living selling the cattle he raises to Africans, who buy them with the wages they earn working on the estates and in the factory of a Belgian tea plantation!

We can do no better, in concluding this discussion, than to quote a passage from the writings of Phyllis Deane, an economist who, through depth study, has taken the patterns of one of the simpler African economies fully into account in her analysis of national income-accounting for an African colonial possession, Nyasaland. The relevance of this passage for economic planners needs no elaboration:

An attempt to examine the structure and problems of a primitive community in the light of the existing body of economic thought raises fundamental conceptual issues. . . . In particular, it is not clear what light, if any, is thrown on subsistence economies by a science which seems to regard the use of money and specialization of labour as axiomatic.

The jargon of the market place seems remote, on the face of it, from the problems in an African village where most individuals spend the greater part of their lives in satisfying their own or their families' needs and desires, and where money and trade play a subordinate role in motivating productive activity. A science which studies "that part of social welfare which can be brought directly or indirectly into relation with the measuring rod of money" does not appear to have much contribution to make to the problems of a semi-subsistence economy.*

The course of cultural change, once set, is not reversible. To work out the impulses that have been put in motion in Africa by the introduction of African societies into the stream of world affairs will require the best efforts of the best thinkers in all the disciplines bearing on human behavior. But the best thought will not be good enough if it disregards the truism derived from the study of culture: that contact between peoples, no matter how unequal these societies in numbers and power, will inevitably result in an amalgam as the new is projected against and reconciled to the pre-existing cultural base.

*Phyllis Deane, *Colonial Social Accounting* (1953), pp. 115-116. The quotation is from A. C. Pigou, *The Economics of Welfare*.

DISCUSSION

LLOYD G. REYNOLDS: An economist traveling outside the United States quickly becomes aware that he has been teaching not a general science of economics but a special brand of contemporary Anglo-Saxon economics. The institutional base of this economics is quite narrow, in terms both of time and of space. The operation of economic institutions in France or Italy seems rather peculiar to one reared on a Marshallian diet. The peculiarity, however, is not in the institutions but in the restricted outlook with which we approach them.

The feeling of having moved beyond familiar intellectual landmarks becomes much stronger when one steps out of an airplane in Uganda. Professor Herskovits' comments on the inapplicability of Western growth models to African conditions impress me as quite just. I have found that a good graduate student in economics going out to Africa for field study usually ends up by throwing away the first draft of his thesis together with most of the concepts underlying it. A willingness to do this reflects credit on the student; but it reflects little credit on our profession, which sent him out so poorly prepared to analyze economic behavior in a different cultural setting.

It is no real answer to graft new courses in "African economics," "Indian economics," "Russian economics" or what not onto a basically unchanged graduate curriculum. We need a basic restructuring of graduate training and research: an approach which places more emphasis on comparative study of economic institutions at different times and places and which works toward a truly general study of economics. Courses in economic history and in comparative economic systems are supposed to lend this sort of perspective; but these courses are regarded as marginal in most graduate programs, partly because their relevance to the remainder of the program is unclear. They tend to be discursive, rather dull, and lacking in the analytical precision which characterizes a good course in monetary theory or fiscal policy. Part of the answer may be to infuse a comparative viewpoint into the teaching of special fields such as labor, industrial organization, and public finance. But beyond this, I believe it is possible to develop firmer techniques for analyzing a total economy and to raise the course in comparative economic organization from its present low estate.

While I am quite prepared to lecture my fellow economists in this fashion, I am not going to let the anthropologists off scot free. If economists overestimate the usefulness of Western-style economic theory, anthropologists are perhaps too ready to discount this rigorous though unrealistic training. I believe that experience in handling growth models relevant to the United States or Western Europe is of some use to a student in constructing his own models for Kenya or Nigeria, provided only that he realizes the necessity for fresh construction. Again, while many economists are naïve in assuming that economic development necessarily brings gains in human welfare, some anthropologists appear to have a bias in the opposite direction. It is perfectly

natural for social scientists to fall in love with their data, and anthropologists are as much entitled to admire the home life of the Bantu as economists are to admire a Chevrolet assembly plant. I am suggesting only that both anthropologists and economists should recognize the natural biases induced by their training.

Anthropologists should perhaps also devote less attention to culture traits which, however interesting in themselves, are not directly relevant to the tides of economic and political change sweeping the African continent. Professional responsibility requires that we ask ourselves: What will our research findings contribute to the development of wiser governmental or private policies? If the practical applications are minor or conjectural, should we not at least raise the question whether the research is worth while? I am sure Professor Herskovits would not quarrel with this view, since his own work has been so much concerned with the "earthy" analysis of economic processes. I have in mind also the admirable work being done at places like the East African Institute for Social Research in Kampala, where anthropological techniques are being applied to pressing problems of economic and political leadership within the African community.

The central problems of African economic development are problems which in Britain and America we regard as solved or at least well on the way to solution. They thus appear as scarcely-recognized assumptions rather than as central features of our growth models. Consider, for example, the matter of community facilities and services. Direct investments in industry and agriculture within Africa can become productive only after heavy indirect investments have been made in education, public health, sanitation, agricultural research and extension activities, transportation, communication facilities, and community development. Funds for such communal investment can be raised only in part from local revenues. The colonial powers, far from being able to "exploit" their colonies, are called on to grant substantial subsidies to areas from which they will probably be ousted in the end. The economic and political logic of this process is puzzling.

Professor Herskovits rightly reminds us that problems of labor supply, motivation, and efficiency are also highly important. To approach this complex of problems with the attitude of an American personnel manager is to ensure certain failure. Motivation of the African worker is not an individualistic matter which can be handled successfully by the right "package" of pecuniary and nonpecuniary incentives. It involves the family and tribal groupings in which the individual is embedded. The Belgian administrators in the Congo, who have done an unusually sophisticated job on this front, have found it necessary to move whole families intact from rural to urban areas, and to invest heavily in urban housing, education, and community facilities. An integral part of the process is a drastic shift in consumption patterns and aspirations. The administrator who commented that "our real job is to make the African discontented," was getting at a central truth. The problem is not one of labor supply as conceived in the United States but one of transforming the whole pattern of family organization and community life.

Direct investment in industry, mining, public utilities, commerce, and large-

scale agriculture is an important part of the development process. The capital for this investment will not come in any large measure from voluntary personal saving. It will come from business saving, from forced saving out of tax revenues and government commodity control schemes, from imports of government funds from the colonial powers, and from private capital imports. The main barrier to private capital imports is almost certainly political instability and the dubious future of the white man in Africa. The colonial powers profess to be preparing Africa for self-government and the British, in particular, make no secret of their eagerness to withdraw from colonial operations. Premature revolt may speed the process of evacuation in some areas. Businessmen must calculate, therefore, on the basis of short-time horizons. Many projects thus appear unprofitable which would become profitable under conditions of political tranquility where one could look forward for thirty or forty years.

I believe that Africa offers an unusually fruitful area for the skills and the wisdom of social scientists. Work in politics, law, and administration is perhaps of central importance; but cultural anthropology, social psychology, economics, and other disciplines also have much to contribute. Our work in Africa must be realistic, responsible, and guided by a considerable sense of urgency. Africa is not a laboratory which we can exploit at leisure for our own scientific pleasure. It is a tempest of change which intelligent and timely action may help to tame and control but which capricious and irresponsible action may raise to destructive force.

CALVIN W. STILLMAN: It is a great pleasure to have been invited to comment on a paper on Africa by Melville Herskovits, for two reasons. First, of all American academicians he is the best-informed on the subject and, second, Professor Herskovits takes economics so seriously that he never challenges us on the meanings of our terms. He confines himself to pointing out certain limitations in the applicability of our conclusions.

Herskovits here has two things to tell us: something about Africa and something about the difficulties of applying economic analysis to a non-Western culture. But before we dip into this bucketful drawn from the well of wisdom, I should like to point out a persistent difference between the ways of anthropologists and the ways of economists. Economists tend to be involved in policy matters: economists deal with problems which are so defined because somebody wants a situation changed. Anthropologists, on the other hand, look at total situations as interesting wholes. In matters of induced change, anthropologists are seers of difficulties. Anthropologists are inherently very conservative people in looking at society. But in the case of Africa, Herskovits tells us that one thing we probably cannot change is change itself; he makes it clear that Africa is changing, rapidly, whether we like it or not. The key phrases are these: "African social structures are not disintegrating . . ." and "the course of cultural change, once set, is not reversible." We must conclude that no amount of foreign aid will succeed in establishing duplicates of Western social and economic organization in African societies.

The matter of applying Western economic thought to a non-Western society is one which interests me very much indeed. May I make my position clear

at the start by saying that I think Western methods are a powerful tool to use in any non-Western society, but that like many such tools, misuse is dangerously easy and may lead to ridicule which threatens further use. For instance, Herskovits says that our need is for models of economic growth. I think that such a device belongs a long way in the future and that we are nowhere near ready to experiment with such a tool. On the other hand, I think that we should develop new tools of partial analysis—new typologies, for instance—and that we should examine closely the possible intercultural usefulness of the older tools which we all—Herskovits included—use uncritically.

Herskovits is telling us something of great importance when he tells us of the readjustments required by innovation. S. Herbert Frankel puts the matter in terms of economics in his monumental volume, *Capital Investment in Africa*. Frankel points out that the essence of capital investment is a changing of methods—and that herein lies the difficulty. Frankel's wisdom appears again in the *Report of the East African Royal Commission*, in a conscious attempt to use classical value theory to the limit of its applicability. This is not at all "Adam Smith" in Africa—at most, it is Adam Smith with a darned good guide to show him where to stop. Given the facts, economists can be trusted to proceed rationally. The tragedy of overextended application of economic analysis is well expressed by the Afrikaans proverb, "Onbekend is onbemind."

Now, the time has come for a searching look at the abstract nouns we all like to toss off to keep our logic afloat: nouns like goals, values, wants, savings, labor, security, and such expressions as middle class and psychocultural. I submit that in the effort to adapt classical economics to an increasingly known world, we have had to pack the treasure in some rather remarkable excelsior to keep its fragile rigidity from damaging contact with hard reality. Classical economics grew in a rather unique culture and, as members of that culture, it has served us well. There is implicit in classical writings what other social scientists call personality theory and role theory. These theories have been made explicit and very useful analytical tools in other disciplines; they suggest that we look for associated assumptions in the thinking of the early economists. For instance, Adam Smith's implicit personality theory might best be described as an impersonality theory: the assumption of rationality implies absence of affect between the individual and any single unit of a homogeneous set of opportunities; between units of one class of consumer items in a market; between units of productive resources available for allocation. Smith's implicit role theory is the elemental one in which each individual strives for a minimum state of tensions in a world in which his status and basic range of opportunities are rather closely ascribed. Because the range of free choice is narrow, interpersonal comparisons are easy and aggregation becomes possible. It is upon this foundation that there is built the internally quite logical conception of a market economy, about which the abstract nouns are packed for purposes of adaptation.

There are some corollaries of this conception which I have always hoped that Herskovits would point out for us, but I fear that his respect for economists is too great. One corollary is that distribution is intimately related to the production system; distribution is based upon principles of contribution to

production. Can we say that this is true of African societies? Or was Benjamin Franklin nearer the truth, back in the early days of the Republic, when he wrote that each society will determine in its own way what shall be the division of rewards?

Another corollary is a very special idea of the foundations of capitalistic production. In the Western world we enjoy a great cultural asset in the form of stable interpersonal relations, based upon certain folkways, which permit an elaborate system of credit. Is an identical system of interpersonal relations required for capitalistic production anywhere? Jules Henry has listed alternatives, in his study of the Pilagá. Professor Frankel has detailed the role of special British folkways—honest administration, faith in Empire, and close governmental collaboration—in the total investment of capital in Africa.

Herskovits helps us a lot in pointing out that to an African, wage labor may be a marginal interest. But he falls into a common trap in finding "division of labor" where there is specialization in function. Smith's use of the term implies specialization by motivated individuals, who seek personal gain. Raymond Firth has told us of the way in which apparent division of labor, based on other criteria, actually hinders economic development.

Finally, a note on "psychocultural." I suggest that in dealing with Africa we dispense with the excelsior and think in terms of individual Africans, each "competitive" in that he is searching for a life space for himself—pressing forward in some areas; defending advantages in others. To aggregate individual behavior in an economic context we should be ready to select several aspects alternatively from this nuclear whole. There is the old personality type, that paragon of independence, Economic Man—and I think he is worthy of renewed respect. The only thing wrong with the gentleman was that he was alone. He should be used only in conjunction with alternative assumptions—one such could be that men are fundamentally dependent and act accordingly.

Economic anthropology should be prepared to fit economic behavior into the pattern variables suggested by Parsons and Shils—with one caveat, that the first dichotomy is whether to act at all. The approach of this general theory of action seems to me particularly useful where cultures clash and individuals are drawn by special attractions from one locus of security into what may turn out to be a very threatening world.

I wish there had been time for a discussion of the role of government and of colonialism in Africa. Colonialism is, in essence, an attitude of mind—and one of tremendous importance in Africans as well as in Europeans. Leonard Samuels has written of the effect of these attitudes upon the economic development of the Union of South Africa; his findings apply in varying degree to the entire continent. Both the IBRD report and the East Africa Royal Commission report touch upon the aversion of Africans to foreign capital—for reasons related to attitudes of colonialism. Here is the locus of a great change that must be made if capital investment is to be effective in bringing about economic development in Africa. In this connection, Frankel quotes a most apposite African proverb: "I cannot hear what you are saying because what you are is ringing in my ears."

SANFORD A. MOSK: My comments will relate principally to the paper given by Professor Herskovits, but I should like first of all to make some observations suggested by the two papers in combination. They complement and supplement each other nicely. Professor Hance summarizes the physical conditions of tropical Africa and brings out the physical obstacles to economic development. Professor Herskovits tells us about the cultural problems and obstacles that have to be faced as efforts are made to bring about economic change.

In analyzing problems of economic development in Africa—or virtually anywhere else in the underdeveloped areas for that matter—the cultural factors appear to be more important than those of a physical nature. I think that Professor Hance, judging from some remarks in his paper, may well agree with this view. The point about physical conditions is that, at a given stage of feasible technical application, they set limits to development. But, within these limits, there are some possibilities for advance. These possibilities, however, are apt to be narrowed and reduced by cultural factors. Thus the effective limits are set by the culture rather than by topography, climate, soil, and the natural cover of vegetation.

There is, in addition, a special reason for giving culture a priority over physical factors in this particular discussion. It seems harder for economists to integrate an understanding of cultural institutions into their thinking about development problems than it is for them to deal with physical limitations. Economists accommodate themselves readily to the evaluation of resource data and potentialities. Even if we grant that economists as a professional group are more inclined to deal with resources as an abstract concept rather than in terms of their physical properties, it is nevertheless true that the economist is receptive to acquiring such knowledge where it seems called for, and he gets to feel reasonably comfortable in handling it. We cannot say the same about cultural factors in underdeveloped areas. The typical economist, as Professor Herskovits suggests, is likely to think of development in terms of European and American experience. Where the cultural conditions do not fit his model, he finds himself out of step with the situation, and he is readily tempted to leave it entirely to someone else to deal with this aspect of the problem.

If the economist is to make a meaningful contribution to the analysis of development problems in underdeveloped areas, he must not shrug off responsibility for understanding the precise nature, tenacity, and bearing of cultural forces on development. He must weave into his own thinking the results of investigations of other specialists—anthropologists, sociologists, political scientists, and others—and he must address to them specific questions, the answers to which will promote mutual understanding of the problems and possibilities of development. More will be said about this question below. Here I am concerned with emphasizing the need for economists to fill a huge gap by getting a thorough understanding of cultural factors of the kind Professor Herskovits deals with in his paper. This gap is much greater than the one we find in the economist's knowledge of physical factors.

From what has already been said, it is obvious that I endorse Professor Herskovits' view that economists, or economic planners, dealing with develop-

ment in Africa must have an understanding of the African cultures involved. Without it, they cannot make their most effective contribution. I agree that economic planners in Africa have for the most part been deficient in this respect. However, I also believe that the perspective on cultural factors employed by Professor Herskovits in this paper needs to be supplemented and modified in one important way. I propose, therefore, to devote most of my remarks to this one question, which can be best approached by asking: Who are the planners?

Planners, in that huge area lying between the Sahara and the Union (tropical Africa, as Professor Hance refers to it), seem to fall into three main classes. First, there is the visiting mission of experts sent by an international organization or by a metropolitan government. A second group is made up of colonial officers who are resident in the area. Third, in some places, Africans themselves are involved in planning.

It is interesting to observe that the examples which Professor Herskovits cites of deficient cultural understanding by planners are mostly taken from reports of International Bank missions. In doing so, I believe that he correctly calls attention to a fundamental weakness in the flying mission of a team of economic experts in such areas. However strong they may be in the analysis of banking behavior, inflation, balance-of-payments problems, and the like, they are usually defective in understanding the social and cultural institutions which profoundly influence development. Their contribution, although it may be important, is a limited one—limited to certain kinds of immediate and short-run problems that can be handled by conventional economic analysis.

As regards the second group, colonial officers, I am inclined to think that they are keenly aware of cultural obstacles to economic development—perhaps too much so. Even though they may not have a sophisticated knowledge of the local culture such as that commanded by the trained anthropologist, their day-by-day experience shows them that plans do not work out as they do at home or in the larger orbit of Western culture. Indeed, the obstacles are likely to loom so large in their minds as to lead them to the view that very little can be done in the foreseeable future, that development can only be achieved in the remote future, after several generations more of education and adaptation to Western ways of living. They, too, are institutionalized. My own firsthand impressions about the views of colonial officials are admittedly limited in scope, but I should like to record the general observation that psychologically they are not receptive to proposals to start something right now or to evaluate objectively such possibilities for immediate development as do exist. I think in this respect there is no disagreement between Professor Herskovits and myself. Indeed I have here extended and supplemented an inference I drew from a remark in his paper.

The participation of Africans in planning, omitting the independent countries, is essentially confined to parts of West Africa, where the movement towards self-government is far advanced. Professor Herskovits cites with approval the mapping out of the Volta Project in the Gold Coast, in which the human factors have been taken into account along with the technological and economic factors. European participation is, of course, not lacking. Never-

theless, this experience does suggest the need for full participation by Africans if planning is to be congruent with the institutions and values of the people it is intended to benefit.

The drift of these observations is to bring out the importance of colonial situations and the heritage of colonialism in Africa and to suggest that sound development in a meaningful sense, embracing an understanding of cultural reactions and objectives as well as of possible material advances, can only be achieved if Africans themselves play an active part in the planning. I have rested the case upon a contrast between West Africa and other parts of the continent. In doing so, I realize that the cultures of West Africa are not identical with those of Central and East Africa. Furthermore, although the problems of development in West Africa are difficult, they are probably less so than those encountered in the other areas referred to. West Africa, to cite but a few examples, is not seriously handicapped by the noneconomic holding of cattle; West Africa does not have substantial numbers of European settlers engaged in agriculture; West Africa has not had big mining developments, like those which in other regions have caused migration and a decline in indigenous agriculture; West Africa has good access to ocean transport. But even when all these factors and others are taken into account, I believe that we are justified in using the contrast to show the importance of African participation in development planning.

I should like to extend these remarks about African participation one step further and to suggest that when Africans feel that there is some point to what they do, for themselves and for the future of their own people, then some of the cultural ways which run counter to material development may undergo fairly rapid change. This possibility is, I think, recognized by Professor Herskovits when he calls attention to the factor of opportunity in connection with the problem of labor turnover and contrasts the reactions to sustained employment of Africans in British West Africa with those characteristic of industrial workers in East, Central, and South Africa, where opportunities for moving to higher grades of work are at a minimum. The whole colonial situation seems, therefore, to be highly important in shaping response to economic opportunity. Another illustration of the importance of European-African relations and attitudes is found in the experience of the Dunlop factory in Durban, reported in a study by the Department of Economics of the University of Natal, entitled the *African Factory Worker*. Because of a shortage of European labor during World War II, Africans were employed in factory jobs from which they had formerly been excluded. This opportunity, plus improvement in family housing, was responsible for a reduction in labor turnover, and, furthermore, the results in productivity and efficiency far exceeded the expectations of the European managers when the experiment was begun.

Lest there be some misunderstanding, I should add that it is not my intention to imply that the cultural heritage of any African people can be shed overnight, but simply to suggest that the opening of larger opportunities to Africans is likely to bring out a considerable response, in spite of cultural values which run counter to round-the-clock work, individual saving, and so on. Furthermore, I think Professor Herskovits agrees that we need to know a

great deal more than we do about the changes which have already been taking place in African cultures and cultural values as a result of European contact and as a result of changing metropolitan policies in some places. Also, we need to know more about the ways in which Africans have been reinterpreting Western innovations so as to make some use of them without scrapping their pre-existing cultural values and patterns of behavior. Parenthetically, these two related questions—namely, the study of cultural changes under way and of the adaptation of innovations to African cultural values—make up a field of research in which the academic scholars (anthropologists, economists, and so on) can make a major contribution to the evaluation of the problems and the possibilities of development in the African continent.

In conclusion, I have made an effort to bring a modified perspective to bear on the substance of Professor Herskovits' paper by emphasizing the role of colonialism. As a corollary, it has been suggested that some of the qualities identified with African cultures and which impinge upon economic development are the result of colonial conditions and attitudes rather than of native institutions. If so, they are probably obstacles of a lesser order and subject to amelioration by changing colonial policies and European attitudes. The cultural obstacles to economic development in Africa are real and they are difficult to cope with. Nevertheless, if adequate weight is given to colonial factors, the cultural handicaps appear less imposing than they are made out to be in the paper which Professor Herskovits has given us.

REPORT OF THE ATTORNEY GENERAL'S COMMITTEE ON ANTITRUST POLICY

MARKET POWER AND BUSINESS CONDUCT: SOME COMMENTS*

By EDWARD S. MASON
Law School of Harvard University

The antitrust field is, perhaps, of all areas of discourse the one in which practitioners live best by taking in each other's washing. One shudders to think of what the position of an editor of an economic or legal journal in search of manuscripts must have been before the passage of the Sherman law. John Stuart Mill tells us in his autobiography that, at one stage in his youth, he was filled with anxiety lest all possible combinations of musical notes be exhausted and the world deprived of new compositions. Much more likely is it that all possible combinations of words on the subject of antitrust will be exhausted and our literature deprived of further new reflections on this subject. The *Report* before us makes a notable contribution in this direction.

It is difficult in judging this *Report*—and in fact any government report—to know how properly to assess the area of freedom open to the Committee. Any government report—and, as a frequent participant in such ventures, I speak from some experience—is a political product in at least two senses. The commissions responsible for such reports are usually established because it is judged to be politically expedient to do so. The expediency may consist of nothing more than a judgment that an act of “statesmanship” is currently required. There are also other reasons. Second, a government report is inevitably a group product and is usually an effort requiring the participation of a number of bureaus and departments. In this sense it necessitates an appeal to politics as “the art of the possible.” In other words, government reports are written in an external and an internal political environment which circumscribes more or less seriously the area of freedom. Under these circumstances it would be a mistake to expect in such a document a bold and original examination of antimonopoly policy. The *Report* before us does not, in this respect, disappoint our expectations.

On the other hand, if we push our analysis of the limitations surrounding such report writing too far, we are apt to fall into a frame

* This paper draws heavily on analyses and ideas generated by collaborative work with a group of economists and lawyers in Cambridge, Massachusetts, on a study of monopoly and competition financed by the Merrill Foundation for the Advancement of Financial Knowledge.

of mind described in the French maxim: "Tout comprendre c'est tout pardonner." To attain this level of benign objectivity is to ask too much of an economist or a lawyer commenting on the work of his professional colleagues.

"Give me a place to stand," said Archimedes, "and I will move the earth." Obviously, in addition to a place to stand Archimedes wanted a very long lever. The Attorney General's Committee had a relatively circumscribed place to stand and a rather short lever. Consequently this *Report* cannot be judged to have moved the earth. That would be to expect too much. On the other hand, in addition to a highly professional examination of antitrust cases and a competent discussion of workable versus pure competition, we might reasonably have expected a more illuminating consideration of the weakness and strength of antitrust policy than in fact we received.

The Commission described as its primary task "to mark out as clearly as possible the path antitrust has travelled and what it augurs for the future." The *Report* says, "Our hope is that from such clarification will emerge more practical guides for business seeking to comply with the antitrust laws and for Government officials charged with enforcing their prohibitions." (Page 4.)

In fact, the Commission went somewhat further than this modest program would indicate. To its credit must be placed a forthright recommendation for repeal of federal price maintenance legislation (the action which received most public attention); a perceptive and useful discussion of price discrimination and the Robinson-Patman Act; and, most important of all, a knowledgeable and effective defense of per se against a threatened encroachment of the rule of reason.

On the debit side, I would be inclined to put a tendency to conceal a very real development of antitrust law toward increasing emphasis on market power at the expense of monopolizing and restraining practices in Sherman Act cases; a total failure to take advantage of an opportunity to suggest policy and clarify the law with respect to mergers; and a treatment of exemptions to the antitrust laws that can only be described as perfunctory.

I wish to limit myself in this short paper to some aspects of the issue of per se rules versus the rule of reason and to a few brief remarks on the significance of market power in antitrust policy, hoping that my colleagues on this program will illuminate other aspects of the *Report* of the Attorney General's Committee.

Eugene Rostow, while partially dissenting from the majority findings, nevertheless states that "the principal theme of the Report, on which we are unanimous, is that Congress and the Courts have developed a reasonably unified and consistent corpus of antitrust law,

directed at protecting the economy against substantial and significant limitations on competitive conditions." (*Report*, page 388.) Certainly Dean Rostow, in making this statement, speaks for a much larger group than the membership of the Attorney General's Committee. But the accent should be on "developed." The law and policy as it now stands, elaborated and expressed in recent cases, is something rather different from the law and policy in 1920.

The Attorney General's Committee, it is true, denies that this is so. Their professionally deft and skillful exegesis discovers a uniform and consistent body of law from the Steel case to date and, like the devil quoting scripture, the *Report* quotes a corroborative excerpt from almost every important decision. This, I submit, is a relatively easy thing to do. Pareto once remarked that the statements of Karl Marx are like bats: from one angle they resemble birds while from another view they look like mice. This observation is equally apropos with respect to antitrust decisions. It is possible for the skillful reader to buttress almost any preconceived notion of what the antitrust laws are about by judicious citation of chapter and verse.

On the other hand, when one asks the question whether the Steel decision in 1920 (*U. S. v. U. S. Steel Corporation*, 251 U. S. 417, 1920) or the United Shoe Machinery decision of 1918 (*U. S. v. United Shoe Machinery Co. of N.J.*, 247 U. S. 32, 1918) would have been probable in 1955, I submit that an affirmative answer seems highly dubious. It seems to me even more doubtful whether the Alcoa case (*U. S. v. Aluminum Co. of America*, 148 Fed. Ind. 416, 1945) or the Tobacco (*American Tobacco Co. v. U. S.*, 328 U. S. 781, 1946), the second United Shoe Machinery (*U. S. v. United Shoe Machinery Co.*, 110 F. Supp. 295, 1953) or the Standard Stations (*Standard Oil Co. of California v. U. S.*, 337 U. S. 293, 1948) would have been decided the way they were in fact decided by the courts of the twenties. As I read the decisions there has been a substantial development of antitrust law in the direction of an expanding area of per se rules and of a greater emphasis on market power at the expense of illegal conduct or practices. This development is—or should be—of considerable interest to economists as well as to lawyers since it calls for the application of tools that are commonly supposed to be in economic tool kits.

Per se Rules

When the appointment of the Attorney General's Committee was announced there was considerable apprehension on the part of proponents of rigorous antitrust enforcement, both inside and outside the committee, that this opportunity would be seized by the opposition to recommend a substantial expansion of the rule of reason. There was

much girding up of loins and on the whole this girding appears to have been successful. Even that notable dissenter Louis B. Schwartz is constrained to admit that "the Majority Report . . . does not call for a general expansion of the 'rule of reason.'" (*Report*, page 391.) The word "admit" is used advisedly since there seems to be a disposition on the part of most of those whom I here refer to as proponents of rigorous antitrust policy to look the horse that brought them victory skeptically in the mouth. Mr. Schwartz finds that "some of (the Report's) specific proposals" and the heavy emphasis placed on "full economic investigation" look "in the direction of limitation of the scope of *per se*." (*Ibid.*) These doubts are perhaps to some extent justified by the rather complacent attitude of those whom I here call opponents of rigorous antitrust enforcement. This complacency seems largely to be associated with their approval of the realistic attitude of the *Report*, particularly evident in Chapter VII, toward economic considerations affecting monopoly and competition, with special reference to the definition of markets.

These attitudes of the proponents and opponents of "rigor" toward full economic enquiry and a careful examination of the extent of the relevant market is worthy of comment. Is it that those favoring a large scope for *per se* fear that full economic investigation would disclose a less serious limitation of competition than is commonly supposed? In part, of course, the difference between the "pros" and "antis" is based on procedural considerations. The application of *per se* rules is a relatively cheap and quick method of enforcing the law; an appeal to the rule of reason frequently involves the big case which drags on for years at great expense to all except the lawyers concerned. The presumption that a number of the Committee members favoring an expansion of the rule of reason are members of the antitrust bar is perhaps not unrelated to the legal paradise presented by rule of reason cases.

But there is obviously more to this division of opinion than procedural considerations. Those favoring a broad scope for *per se* clearly fear that full economic investigation would lead to substantive results less desirable from their point of view. Those favoring an expansion of the rule of reason obviously feel that full economic investigation will bring about an antitrust law closer to their heart's desire. Is this so and, if so, why?

The rule of reason presumably requires an examination of the "effects" of an alleged violation in order to determine whether, in fact, a violation has occurred. But the effects of a particular course of conduct in an interdependent economy consisting of a large number of decision-making units can be very far-reaching indeed. Suppose a

price-fixing agreement succeeds in raising the price of a particular commodity. Increased profits for the participating firms induce outsiders to enter this market. In other industries the apparent new profit opportunities lead to a redesign of products in the direction of the price-fixing industry's market. Under the impact of these adaptations the price-fixing scheme breaks down and the industry is found—under appropriate definitions of competition—to be much more competitive than it was before.

We would probably all admit that this is a possibility. In an economy such as ours a particular disturbance can be over- as well as under-compensated. Furthermore, the repercussions of this disturbance can continue for a long time and spread over a wide surface before they eventually sink into the embracing arms of long-run equilibrium.

How far is full investigation supposed to go before we are entitled to form a judgment on the "reasonableness" of a course of conduct in the application of antitrust policy? Must we not agree with Schumpeter that, since we are dealing with an economy in process of development, a judgment on the consequences of any particular part of it—say a combination of hitherto independent firms—can only be a historical judgment as these consequences "unfold over decades" and a partial judgment, since these repercussions reverberate throughout an economy whose development is "organic"? (J. A. Schumpeter, *Capitalism, Socialism and Democracy*, page 83.)

An attempt to push enquiry into effects very far is clearly an invitation to nonenforcement. The dissenting members of the Attorney General's Committee are quite right in fearing the consequences of "full economic investigation." On the other hand, the rule of reason—even in its "most reasonable" application—has never, in fact, examined very far into the effects of a challenged course of business conduct. At most it has pursued economic investigation one or two steps beyond the point at which per se would have carried it. A combination that is not illegal per se becomes illegal under the rule of reason if it pursues certain practices regardless of what the effects of this combination plus practices might turn out to be over a substantial period of time. A trade association program though not illegal per se becomes illegal under the rule of reason if investigation turns up one or two so-called "restrictive elements." The difference between per se rules and the rule of reason is not a difference between *de facto* violation and violation dependent upon an assessment of ultimate consequences. At most it is a difference between *a* and *a + b*.

Lawyers are said to love rules and economists are certainly addicted to models. The proper use of both rules and models is a question that lies at the heart of a valid distinction between per se and rule of reason.

Per se involves a conclusive presumption that a specified course of action is in violation of the law. It is a refusal to examine the effects. The application of such a rule makes economic sense when—and only when—the facts, i.e., the market situation or course of conduct complained of, permits a legitimate inference as to the effects. It is at this point that the economist with his models enters from the wings. Unless we want to climb with Schumpeter up and down the seamless web of history, we must become theorists and be prepared to generalize. We must be prepared to say, for example, that, given a price-fixing agreement, it is possible to infer the effects and unnecessary to conduct a further examination. Or we must be prepared to say either that all requirements contracts have certain undesirable effects or that certain kinds of requirements contracts under certain specified conditions have these effects. The difference between per se and the rule of reason is essentially a difference in the detail required of the model in order to permit an inference concerning effects. The question of what types of models permit what kinds of inferences is one to which economists might be expected to give answers. I shall not attempt here, however, an assessment of the value of their contribution to date to antitrust policy.

The primary difficulty, of course, in inferring economic effects from market situations or business practices lies in the fact that a sensible antitrust policy has in mind two kinds of effects. On the one hand, we expect from our competitive, free enterprise systems a set of powerful motivations and drives toward increased output, product improvement, cost reduction; in general, toward increased efficiency in the use of resources. On the other hand, we expect from the competitive system a set of effective limitations to the growth of private economic power. Efficiency and power—the one to be embraced and the other rejected. Both these aims are important, and it is essential that public policy keep both in mind; hence our woe.

If efficiency were not a desideratum, along with limitation of market power, no rule of reason would be necessary. It would then be possible to entertain a conclusive presumption against size or market share or integration or various types of business activity now in legal doubt without threatening the fundamental purposes of antitrust policy. The law could then consist exclusively of per se rules and, if the number of firms were larger—and the number of permitted practices smaller—than strictly necessary to the effective limitation of market power, no harm would be done. This is, in fact, the "limitist" solution to antitrust policy, and if limitation of market power is the sole objective, there is much to be said for it.

The fact that limitation of market power is not the sole objective

does not, however, necessitate opening the door to full economic investigation of ultimate consequences. At most it prompts a limited enquiry into the economic justification, if any, of the alleged violation. (A phrase frequently used is "business justification," but of course this is a misnomer. Any kind of restrictive or monopolistic practice may have a business justification.) How far this enquiry needs to go depends, superficially, on what confidence the courts do have and—more profoundly—on what confidence the courts should have in the process of economic analysis and generalization.

The law holds firmly that a price-fixing agreement is illegal *per se* and the conduct complained of has been broadened to include any "tampering with prices." The economic rationale behind this *per se* rule is presumably that an agreement among competitors to sell at a fixed price expands market power without bringing any perceptible economies to the production and distribution of the commodity affected. As we have seen, a price-fixing agreement may, in fact, set off a chain of consequences leading ultimately to a market structure more competitive than before. There may also be real economies—a reduction of selling costs, for example—associated with the agreement. To defend a *per se* rule is not to deny that such beneficial results may occur; it is only to assert that this outcome is sufficiently infrequent not to be worth bothering about.

It would be useful if, at this point, economists could step forward with the assurance that exhaustive study of price agreements and their consequences had demonstrated that invariably, or in 95 per cent of the cases in a properly selected sample, such agreements limited competition and thus increased market power without compensatory advantages on the side of efficiency. Despite extensive study of price-fixing arrangements, I doubt whether any such assurance can be given. Nor, I think, is it necessary. The economics that is relevant to antitrust policy is, of necessity, an *a priori*, partial-equilibrium, *ceteris paribus*-and-all-that kind of economics, but it seems to me sufficient for its purpose. At least I am prepared to hold to this view until the general-equilibrium, creative-competition, dynamic-growth economics becomes a little more concrete and specific than to date it seems to have been able to do.

As I read the development of antitrust law over the last two decades, the courts have substantially expanded the area of business practices within which they are willing to entertain a conclusive presumption that the practice in question limits competition (increases market power) without accompanying economies that can legitimately be inferred. In the course of this development, the notion of what constitutes a price-fixing agreement has been somewhat expanded but it has not encom-

passed the phenomenon of parallel pricing without more. It has become clearer that the *per se* rule also embraces agreements to limit output and group boycotts, and it is a legitimate inference that any concert among competitors is in jeopardy in the absence of a *prima facie* showing of efficiencies. The debatable area is, of course, trade association practices, and it is right that this area continue debatable since the range of variation of practices is infinite and there are involved real possibilities of improvement of efficiency. But let me reassert that the existence of these possibilities does not justify an examination over time into ultimate consequences. It is a question of modifying to some small extent the framework of the model from which inferences are sought to be drawn.

The tying contract has clearly become illegal *per se* and, so far as I am aware, there is no case in which tying contracts have been struck down where it could be plausibly argued that efficient operations were sacrificed. On the other hand, requirements contracts have obviously led the courts to take a second look at some of the broader aspects of so-called "exclusive dealing" arrangements. The brief incursion of *per se* into the field of integration was marked by hasty disavowals and the more extreme statements of the doctrine of "substantially" have tended to be softened. What seems to have been happening is that the courts have substantially moved forward the frontiers of *per se* but have retreated when it became obvious that a more complex model was required. This is as it should be. The law needs to be as flexible as American business practice, and as long as efficiency as well as the curbing of market power is a desideratum, *per se* rules cannot be static.

The argument thus far concerning *per se* rules and the rule of reason may be summarized baldly as follows:

1. The demand for full investigation of the consequences of a market situation or a course of business conduct is a demand for nonenforcement of the antitrust laws.

2. Neither *per se* nor the rule of reason calls, in fact, for such an investigation. The justification for any kind of effective antitrust policy depends upon the possibility of valid inferences from relatively simple statements of fact. ("Simple" facts, however, are not necessarily simply determined. Whether cellophane is or is not one among many products in a market for flexible wrapping materials might be considered a simple fact but the evidence and argument for and against added up to a sizable record.) At most the rule of reason requires a somewhat more detailed elaboration of the market situation and course of business conduct (here called the model) from which inferences are drawn.

3. The effects or consequences sought to be inferred from the statement of facts have to do, on the one hand, with market power (or

limitation of competition) and, on the other, with efficiency (wrongly called business justification). The importance of efficiency as a desideratum inevitably condemns any purely "limitist" interpretation of antitrust policy.

4. The proper scope of per se embraces market situations and courses of conduct that prima facie limit competition (extend market power) with no prima facie contribution to efficiency. An effective enforcement of antitrust policy will seek to extend this scope to its legitimate limits.

5. If there exists a prima facie case for a contribution to the efficiency of economic operations, the enquiry must be extended but only to those limits required for valid inference of probable effect.

Market Power

I turn now to a brief examination of another issue raised by the *Report* of the Attorney General's Commission: the relevance of market power to the problem of antitrust enforcement. Although it is obvious that the "limitist" position pure and simple is untenable, it nevertheless remains true that "limitism" is an essential ingredient in any antitrust policy worthy of the name. If we are to continue to rely on the market rather than on the social conscience of corporate management to give us the kind of business performance we want, the structure of markets must be such as to enforce acceptable competitive behavior. In other words, there must be limits to the permissible degree of market power.

One of the central questions facing public action in this area is whether an antitrust policy that relies exclusively or mainly on enquiries into how power was acquired (e.g., through merger or reinvestment of earnings) or whether it has been abused can establish proper limits. A corollary question is whether current antitrust policy does, in fact, rely exclusively or mainly on such enquiries.

The *Report* of the Attorney General's Committee, speaking of Section 2 offenses, states that "economic monopoly becomes illegal monopolization not only (1) if it was achieved or preserved by conduct violating Section 1 [i.e., through collusion, merger, etc.] but also (2) if it was, even by restrictions not prohibited by Section 1, deliberately obtained or maintained." (*Report*, page 43.)

"Economic monopoly" in this context is, of course, a phrase of specious accuracy. There are degrees of monopoly or market power, and this fact is adequately recognized in recent antitrust decisions. The meaning of the phrase "deliberately obtained or maintained" is also, to say the least, subject to interpretation. The critical questions are how much market power and how obtained or maintained?

The *Report*, attempting to answer these questions by means of a careful examination of cases, manages to leave the impression that, however market power and conduct—or the relations between the two—are interpreted, antitrust policy on this issue has been substantially unchanged for the last three decades. (See, for example, the discussion at page 50.) It would be impossible to document the case for another interpretation without an exegesis too prolonged for this paper. I can merely state it as my impression that the law of Section 2 has developed in at least two directions: market power (or, if you prefer, economic monopoly) is recognized in situations that would rather easily have passed muster in 1920; and the standards of what constitutes abuse of power have been rather stringently tightened. Market power “without more” is still no violation. But the “more” is now less and the concept of power is more embracing than it was in the twenties.

That market power is an elusive quantity requires no demonstration before this audience. It is not possible nor will it ever be possible, by calculating market shares, dividing price-minus-marginal-cost by price, or other hocus pocus, to present an unambiguous measure of the degree of monopoly. Market power has many dimensions. Nevertheless, it should be equally obvious that judgments concerning the extent of market power are made in the enforcement of the antitrust laws and must be made unless we are willing to scrap this legislation in favor of an altogether different approach.

Remedy proceedings involving dissolution inevitably raise the question of market power. Whatever one may think of Judge Knox's conclusions in the Aluminum proceedings, there is no doubt that the central problem he grappled with was how much market power would Alcoa be likely to have in postwar markets (*U.S. v. Aluminum Co. of America*, 917 Fed. Supp. 333). A judgment concerning market power is of the essence of merger policy. A policy that forbade all mergers among competitors would be nonsensical. But if some are to be permitted and others forbidden, the dividing line must turn on conceptions of market power. And, as I have emphasized, market power is an increasingly important ingredient in Section 2 cases. Since economists are suspected of having something important to say concerning the phenomenon of market power, it is well for us to recognize that judgments are going to be made and that, on the whole, it is probably desirable that these judgments be economically sophisticated.

If we view the problem of antitrust enforcement realistically, we shall probably have to admit that regardless of how much the concept and the methods of analyzing market power are refined, it is not going to make much difference in Sherman Act violation cases. Given a firm

that has grown powerful in a market through reinvestment of earnings and whose practices are "honestly industrial"—whatever that means—judges are going to be extremely loath to take action that involves the breaking up of an effectively functioning economic organization, and I suspect that economists would, in their place, behave in much the same fashion. On the other hand, if violation is found, for whatever reason, an economically sophisticated interpretation of market power can do much to shape a sensible remedy.

The most fruitful field for the application of a market power standard, however, is merger policy. And where, in Sherman Act cases, the existence of going concerns argues for the application of—at best—a relaxed standard of market power, there is every reason why, in Section 7 cases, the standard should be strict.

If I may sum up my reaction to the *Report* of the Attorney General's National Committee to Study the Antitrust Laws, I would say that it is a deft, professional job of legal analysis that minimizes certain important recent developments of antitrust policy and ignores a real opportunity to contribute in areas where policy is still inchoate.

ENFORCEABLE COMPETITION: UNRULY REASON OR REASONABLE RULES?

By KINGMAN BREWSTER, JR.*
Harvard University

Two economic observations make the law's job hard. The first is the realization that even though the conduct of an industry is untainted by cartelistic or monopolistic practices, competition may still be ineffective and unworkable. The second is the realization that competition may be workable and effective even though there are not many firms in an industry.

The first realization—the notion that a firm's power itself may make competition ineffective without resort to conspiratorial or predatory conduct—was intruded into legal criticism by Mason's *Yale Law Journal* article, "Monopoly in Law and Economics." (47 *Yale L. J.* 34, 1937.) This structural analysis was a recurrent theme throughout most of the TNEC-dominated decade. With hopeful enthusiasm some legal commentators, notably Eugene Rostow ("The New Sherman Act," 14 *U. of Chi. L. Rev.* 567, 1947), claimed that the new economic sophistication had at last gained judicial acceptance in Cement, Alcoa, new Tobacco and Paramount. To perfect and project this new Sherman Act, judges were urged to hold that conspiracy does not require an actual getting together. Indeed, the less necessary communication between firms is to the elimination of competition, the more important that the industry should be brought within liability's reach and remedial grasp even if no agreement can be shown. And monopolizing was to be redefined to include the situation of a monopoly whether or not others were willfully sought to be excluded. Followers who learned not wisely but too well the art of stretching statutory language to fit economic realities sought to eliminate all possibility of law's avoidance by treating the joint management of a multicorporate family as a conspiracy and by declaring vertical integration illegal per se. Complaints would not only defy dismissal, they would defy defense.

The second observation rested on the fact that the economic aims of competition may be achieved even though the structure of an industry is not competitive. In the *Harvard Law Review* on the "Current Status of the Monopoly Problem," Mason focused on the law's blindness to the possibility of competitive performance even in the absence of large numbers of firms in an industry (62 *Harv. L. Rev.* 1265,

* This paper draws heavily on analyses and ideas generated by collaborative work with a group of economists and lawyers in Cambridge, Massachusetts, on a study of monopoly and competition financed by the Merrill Foundation for the Advancement of Financial Knowledge.

1949). Markham illustrated in rayon (*Competition in the Rayon Industry*) that substitute competition, investment, and innovation rivalry might keep the pressure on, even though firms were few and prices relatively uniform. Economies of scale and Schumpeterian incentives for research might urge tolerance of market power as long as it behaved well. And Galbraith (*American Capitalism, the Concept of Countervailing Power*) made a full-dress "concept" out of the notion that countervailing power might take the curse off bigness while leaving its economies undisturbed. By some, notably Griffin (*An Economic Approach to Anti-trust*), performance itself was urged as a test. The legal prophet of this new look was S. Chesterfield Oppenheim, whose *Michigan Law Review* article ("Guides for a Revised Antitrust Policy," 50 Mich. L. Rev. 1139, 1952) attempted to redesign the law to fit the concepts of "effective" competition. Actual harmful effects, not just conduct or power, should be the test.

So now we come to the *Report*. In a way it bears the mark of both aspects of economic awareness which I have been talking about. Although Chapter VII explicitly disclaims pretense to legal exposition, it is included because it is supposed to be helpful to counselors, litigants, and judges. And Chapter VII's shadow or its light, depending on whether your print is positive or negative, is cast through almost all the discussion of the law. Market is the key word. The struggle to interpret the law as turning either on economic power or on actual economic effects runs through and between the lines on every page. There is plenty of room for everyone under the expansive semantic tent of "undue limitations on competitive conditions." At one extreme the cutting edge of per se rules is dulled even in its application to loose agreements. The *Report* notes that market price fixing is all that has been stricken down in the cases. Hope is held out that power over price may still have to be proved. The rationale is said to be that "undue limitations in price competition are inherently bad because restrictively motivated." Alternatively it is suggested that perhaps the illegality of price fixing stems from necessary or actual effect. Power and effect are given an inferential relevance even to the legality of price fixing. (*Report*, pages 12, 13.) At the other extreme, monopoly power itself is said to be illegal if it is deliberately obtained or maintained. A verbal treasure hunt for the operative meaning of deliberateness runs the gamut from the intentional to the involuntary. (*Report*, pages 55, 56; see especially footnote 211.) In the middle, the poor oligopolist cannot tell for sure when and whether what he is or what he does is legal. On the one hand, conspiracy is said to require proof of actual agreement, albeit perhaps often by circumstantial evidence. On this basis oligopolistic rationality would be a defense to a charge of conspiracy based solely on parallel

behavior. On the other hand, there is a suggestion that "a group of companies who singly do not, but together do, possess monopoly power and have acted in concert to gain, pool or hold it" may be liable if their collective monopoly is deliberately maintained. (*Report*, pages 56, 60, 61.) Throughout the discussion of mergers, distribution, and patents, the common denominator of the whole report is that the legality of conduct will depend on market context, power, and effect.

I would venture to suggest that the courts will be more skeptical than the Committee about making either market power or actual market effects the fulcrum on which legality should turn. Such prediction of the law's apparently cussed resistance to economic sense probably comes as no surprise to an antitrust economist. And my academic law brethren have not done much to justify law's seeming brittleness. What can law as a social science do to illuminate if not vindicate the persistent failure of law as a profession to administer antitrust policy the way a sensible economist would?

While economic architects of antitrust policy quite properly focus on effective competition, you might say that a legal architect must focus on *enforceable* competition. What are some of the criteria of enforceability? They fall under two main rubrics: fairness and feasibility.

Any regulatory policy is going to involve denying some people the ability to do what they want to do. And if your science can be called dismal, mine can be called positively gloomy. Lawyers focus on the fact that public officials and tribunals are going to be fallible at best and incompetent or abusive at worst.

The first urge in the name of fairness, then, is to give the regulating official no more elbow room for error or whimsey or bias than absolutely necessary. If necessity requires a balancing of opposed fundamental social interests and policy preferences, if the decision is inherently legislative, so to say, then perhaps it cannot be fairly delegated to an appointed official or tribunal at all. Or to put it the other way around, if it is practically impossible for the legislature to apply its own *ad hoc* judgment to particular situations, if it must delegate the concrete application of policy, then presumptions must be resorted to even at the price of some irrational results. Unbridled administrative "ad hocism" will not do for the handing out of penalties and forfeitures.

A second urge in the name of fairness, not unrelated to limits on legislative delegation, is to hold administrative action accountable to something other than the conscience and wisdom of the individual administrator. And for accountability to be meaningful there has to be some objective standard for review. This is not simply a promise of a day in two courts, but the promise that the judge as well as the case

shall be judged. And if nondiscriminatory exercise of legal power is an element of fairness, it is desirable to have some test by which to gauge the consistency of decisions scattered over time and place.

A third desire is to avoid, insofar as possible, upsetting people's expectations. So at least to the extent that the impact of law's judgment is punitive or retrospective, it is desirable to let people know in advance what they may and may not do.

The fourth counsel of fairness is that some sense of fault or blame-worthiness should attach to those who are punished or deprived. This means first that they should feel that they could have avoided their troubles by voluntary compliance. You are less sorry for people if you can say in good conscience that "they got themselves in for it." Second, it means that the law's victims should feel by and large that the frustrations and prohibitions which the law imposes do have some generally understandable relationship to the public interest which the community was trying to promote or protect when it passed the law in the first place. My colleague Professor D. F. Turner has pointed out that in some circumstances reason's fuzz may be fairer than per se clarity precisely because it does leave room to prove that there is no connection between the conduct complained of and the harm which policy seeks to prevent. I am rather inclined to feel that, if you have to choose, it is fairer to have people differently situated treated similarly than to have people similarly situated treated differently.

Now this may sound as though I had slipped in some pages from an AAUP or ACLU speech. And I do not want to pause here to argue about whether corporate property rights deserve the same standard of fair treatment which we would accord to individual human rights. Even if all canons of fairness do not always rise to the level of constitutional insistence in the business regulation field, it is just plain good legal administrative sense to do as best you can to be fair.

But suppose you are completely callous about fairness in the area of government regulation of business. What about the other general heading I mentioned: feasibility?

Law takes a pretty dim view of the effectiveness of *ex post* prosecution as an instrument for making conduct conform to policy objectives. Conformity to policy standards must rely overwhelmingly on voluntary compliance.

Feasibility's first requirement of an enforceable policy, then, is that it be what I would call "compliant." Even when the law's "victims" want to do what is wanted, compliance will depend on how clearly they are told what is wanted and what is forbidden. When the public interest is pushing against demonstratable self-interest, its policy's compliance will depend even more surely on the clarity of its declara-

tion. There could be no clearer case of the clash of private and public legal responsibility than that symbolized by the corporate directors, trust and antitrust. If antitrust law does not say clearly "this means you," there is every temptation to wishful counseling, even if lawyer and client intend to respect the law. A business can be expected to give itself whatever benefit is accorded by reasonable legal doubt. And finally, of course, for those who seek to evade the law, enforceability will depend on the sureness and swiftness of detection, prosecution, and relief. Involuntary compliance will depend in large part on how easy it is for prosecutors and judges to tell when the law is violated.

If fuzzy law can put a moral overload on policy's victims, so too an excessively ambiguous mandate may stultify administration. Because of human scruples rather than in spite of them, it is unrealistic to expect identifiable officials to be willing to assume responsibility beyond their competence or commission. Just as fairness is worried about high-handedness, so feasibility is mindful of normal timidity, ranging from admirable humility to simple buck passing. This second facet of law's concern for feasibility makes it important not to ask people to take responsibility for powers of decision which are beyond their competence in their own eyes or in the eyes of others. Especially in the target area of public criticism there is a normal temptation to make one's job manageable. And if an identifiable person is given a power to push people around, there is a strong temptation for him to confine himself to the powers which he can fairly say have been explicitly imposed upon him. It is the part of wisdom for legislators to anticipate this by making the mandate for decision as clear and narrow—as mandatory—as the subject permits. To the extent that they do not make their directive clear, legislatures may expect that by interpretation and construction the decision-maker will himself narrow his own mandate. Feasibility argues against bestowing or accepting the moral overload of unbridled power in any individual or unrepresentative group to settle the fate of others in terms of some undefined "public interest."

These values—administrative considerations, if you will—have, it seems to me, been the neglected theme in antitrust commentary. They underlay Peckham's refusal in *Trans-Missouri* and *Joint Traffic* to entertain the conjectural argument that railroads were not fit for competition. Taft's resurrection of the "ancillary" doctrine in *Addyston Pipe* was explicitly designed to keep over-all legislative judgment out of the courts. Such considerations of fairness and feasibility seem to me to underlay Stone's judicial inhibitions in *Trenton Potteries*. And they are explicit in footnote 13 of Frankfurter's opinion in *Standard Stations*. The essence of the judicial message is that if you give this job to the courts in the form of criminal or public tort adjudication,

you must expect the courts to act like courts. And, so it seems to me, they should. For the values served by not having courts act like legislative bodies are just as important to the society as are the values which might be served by having every case decided by economically rational but essentially *ad hoc* determinations of the public economic interest. The net goodness or badness of effects is not a proper subject of judicial determination. And in fairness to the *Report* it should be said that nowhere does it urge a pure "performance" test.

But what then of market power—the second strain of economic doctrine urged upon the law? Why should not the courts be sensible enough to recognize that power itself can be as restrictive of competitive conditions as conduct? Reverting to the analysis in terms of fairness and feasibility, the answer is that market power, as distinguished from conduct, is a noncompliant standard even if it could be made definite and certain. The sense of fairness rebels at visiting penalties without having afforded the opportunity to avoid them. Even Learned Hand was scrupulous to preserve the form of liability only for intentional conduct in *Alcoa*. This form may seem like a fiction in the light of his aphorism that no monopolist monopolizes unconscious of what he is doing. But the formal insistence seems utterly realistic given the raw material of the record before him which was scarcely concealed by Judge Caffey's "findings." No sense of fairness was outraged by holding *Alcoa* a monopolizer as well as a monopoly.

The unfairness of liability without fault would obviously be compounded in all but the most extreme cases, if market power short of obvious monopoly were illegal. "Unreasonable oligopoly" is not a standard for objective administration; it is a term of subjective expert description.

And even if effective antimonopoly policy overrode judicial scruples about fairness, the feasibility of asking a lone district court judge to reorganize major American industries is belied by what Walter Adams has called the Phryic victories of antitrust. Disillusion has been far more frequent than divestiture. And quite properly, too, for, as Judge Wyzanski has said:

Judges in prescribing remedies have known their own limitations. They do not *ex officio* have economic or political training. Their prophecies as to the economic future are not guided by unusually subtle judgment. They are not so representative as other branches of the government. The recommendations they receive from government prosecutors do not always reflect the over-all approach of even the executive branch of the government, sometimes not indeed the seasoned and fairly informed judgment of the head of the Department of Justice. Hearings in court do not usually give the remote judge as sound a feeling for the realities of a situation as other procedures do. Judicial decrees must be fitted into the framework of what a busy, and none too expert, court can supervise. Above all, no matter with what authority he is invested, with what facts and opinion he is supplied, a trial judge is only one man, and should move with caution and humility.

That considerations of this type have always affected anti-trust courts is plain from the history of the *Standard Oil*, *American Tobacco* and *Alcoa* cases. To many champions of

the anti-trust laws these cases indicate judicial timidity, economic innocence, lack of conviction, or paralysis of resolution. Yet there is another way of interpreting this judicial history. In the anti-trust field the courts have been accorded, by common consent, an authority they have in no other branch of enacted law. Indeed, the only comparable examples of the power of judges is the economic role they formerly exercised under the Fourteenth Amendment, and the role they now exercise in the area of civil liberties. They would not have been given, or allowed to keep, such authority in the anti-trust field, and they would not so freely have altered from time to time the interpretation of its substantive provisions, if courts were in the habit of proceeding with the surgical ruthlessness that might commend itself to those seeking absolute assurance that there will be workable competition, and to those aiming at immediate realization of the social, political, and economic advantages of dispersal of power. (*U. S. v. United Shoe Machinery Corporation*, 110 F. Supp. at 347, D. Mass. 1953.)

So I would not expect the courts to be congenial to market power as a legal mandate for judicially coerced industrial reorganization any more eagerly than they have embraced effects in the public interest as a standard of liability. Even though the *Report* nowhere makes market effects or power the be-all and end-all of legality, they are, throughout the *Report*, the essential conditions of illegality. Fairness and feasibility are only slightly less outraged than they would be if power and effects themselves were the test. If my analysis of inherent judicial inhibitions is correct, I would expect the courts to continue to be more "per se-ish" than Oppenheim and less market power-oriented than Rostow. To the extent that the *Report* in some places reflects actual effects or market power as legal criteria, I would venture the guess that it fails both as prediction and prescription. And because it seems to me that the values underlying enforceable competition are themselves fully as important as effective competition, I would hope I am right.

The basic policy question is ultimately: are criteria of both effective and enforceable competition now met by present policy, law, and administration? In short, is presently enforceable competition sufficiently effective? If not, how might effective competition be made enforceable?

The first question is for economists: Is presently enforceable competition economically effective or not? The second question is for lawyers: How can more effective competition than now prevails be made enforceable? This is too large an order to serve up here and now. But it suggests an agenda for creative economic and legal architecture. Its direction seems to me more fruitful than lawyers' efforts to stretch words out of their popular and legislative sense in order to accommodate economic concepts, on the one hand, and, on the other hand, it may also be more fruitful than economists' efforts to criticize decisions by criteria which the courts do not and should not purport to apply.

If your profession can demonstrate that presently enforceable competition is economically ineffective, then the existing processes might be changed or supplemented. If economic reason urges noncompliant standards, then legal innovation is in order. In the merger field, for

example, part of the curse of uncertainty could be lifted by requiring advance governmental permission for some, if not all, acquisitions. At least the unfairness of surprise and the unfeasibility of compliance would be ameliorated. And perhaps more objectivity of administration could be achieved by making competitive necessity rather than competitive effects the standard of a merger's legality. All mergers above a minimal size might be barred unless it could be shown from the experience of others in the industry that denial of the acquisition would doom the acquiring firm to a demonstrable inherent competitive disadvantage.

If, after exhausting rigorous prohibition of loose agreements and prevention of expansion by acquisition, competition remained economically ineffective, then more radical legal innovation might be called for. If the undoing of undesirable situations, uncontaminated by fault and unavoidable by normal business conduct, is required by an effective competitive policy, then there seems no escape from adoption of an essentially legislative procedure. Such a procedure might well draw upon the experience of the quasi-legislative commission such as our own ancient Bureau of Corporations and the Monopolies Commissions of Great Britain and Canada, with ultimate action dependent upon laying proposals for industrial reorganization on the table of the houses of Congress.

The conventional legal instruments seem very puny. The alternative instruments seem very radical and costly: a radicalism and a cost which would only be excused as a last best hopeful alternative to nationalization, that "over-the-shoulder socialism" called "supervisory regulation" or that "private socialism" which masquerades under the banner of protection of competitors from "ruinous" competition.

Whether we ever get to serious consideration of such extreme, radical, and costly instruments depends on the answer of your profession to the first item on the agenda: Even if we do bear down on per se rules of permissible conduct, will the level of competition be effective enough to be politically tolerable—politically palatable enough, that is—to stem the demand for direct administrative regulation? If your answer is yes, I am very glad indeed. If your answer is no, for reasons mentioned I do not think that you can look to the courts under present law to do much more than they have done. And if your answer is no, if a politically tolerable level of competition cannot fairly or feasibly be maintained by present methods, we might seriously examine more drastic tools of competitive policy before abandoning the market in favor of direct or indirect determination of prices, investment, and business opportunity by public or private administrators.

THE VERDICT ON ANTITRUST AND ITS SIGNIFICANCE

By CLAIR WILCOX
Swarthmore College

Two major developments have marked the policy of maintaining competition in the United States over the past twenty years. The first is the tendency of the executive and judicial branches of the federal government to apply the antitrust laws with greater rigor to industries where sellers are relatively few in number and large in size. The second is the tendency of the legislative branch to suspend these laws or to soften their application in fields where sellers are numerous and small.

The first of these tendencies has manifested itself in many ways. There has been increased activity in enforcement, under Democratic and Republican administrations alike; many more suits have been initiated under the Sherman Act in the past fifteen years than in the previous half century. The courts, too, have been friendlier to competition in their interpretation of the laws. They have held a larger number of restrictive practices to be illegal *per se*. They have been willing, in the absence of proof of overt action, to infer conspiracy from evidence of identical behavior. They have applied the laws to the delivered pricing systems that long characterized heavy industry. They have found monopolization to be illegal, though effected without monopolistic intent by means that were lawful in themselves and though monopoly power, once attained, has not been abused. They have forbidden the employment of patent rights as a means of defeating the purposes of antitrust. The courts have come increasingly to apply effective remedies. They have been reluctant, as always, to break up an established enterprise. But they have acted, in case after case, to deprive the monopolist of devices that he has used to obstruct the entry and growth of rival firms. Patents have been opened to licensing with and without royalties. Access to know-how has been assured. The sale as well as the lease of machinery has been required. Tying and exclusive contracts have been invalidated. The employment of integration to handicap nonintegrated competitors has been ended by divorcement. Artificial obstacles to enterprise have thus been cleared away and the door thrown open to competition.

While the administration and the courts have tightened the antitrust laws in these respects, the Congress has loosened them in others. To the earlier exemption of labor unions, agricultural co-operatives, and export trade associations, it has added rate agreements in transportation, rate making in insurance, marketing agreements in agriculture, prorationing in the oil industry, and resale price maintenance in

the distribution trades. In the Robinson-Patman Act, moreover, it has gone beyond provisions that prevent discrimination in favor of the big buyer to insert provisions that permit and even require discrimination against the big buyer in favor of the smaller one. Here, the purpose is not to protect the consumer by maintaining competition, but to protect the weaker competitor, at the expense of the consumer, by impairing the vigor of competition itself. And this is inconsistent with the essential logic of antitrust.

The tendency to tighten antitrust, in other fields, has not gone unchallenged. There has been criticism, in particular, from businessmen and from members of the bar. Several reforms have been proposed, all of them looking toward a relaxation of the recent rigor of the law. First, it was said, the number of suits brought should be reduced by resort to persuasion, informal clearance, and careful screening by an advisory board. Second, more scope should be given to the rule of reason and fewer practices adjudged illegal *per se*. Third, conviction for conspiracy should require proof of overt agreement; evidence of identical behavior should not suffice. Fourth, the legality of monopolization should depend, not upon the possession of market power, but upon the character of a company's performance. Fifth, penalties and remedies, in many respects, should be less severe. This, in general, was the line taken by the Business Advisory Council in the report on *Effective Competition* which it submitted to the Secretary of Commerce at the end of the Truman Administration in 1952.

It is against this background that the present report of the Attorney General's National Committee is to be appraised. The *Report* is significant as a political document, being addressed to a Republican Administration after two decades of reinvigorated Democratic enforcement of antitrust. It is significant as a consensus of experts and, in particular, as a consensus of the antitrust bar. Among its sixty members, the Committee included a handful of economists, a sprinkling of law professors, and around four dozen practicing lawyers, with clients who have been and may again be involved in antitrust proceedings.

In form the *Report* falls short of what a public document on a major issue of national policy should be. It was written by lawyers for lawyers. Its concern is largely with nuances in the interpretation of the law and with refinements in the processes of litigation. Many of its 400 pages and 10,000 footnotes are couched in forbidding legalese. The Committee's conclusions are presented as those of a majority. The existence of dissent is noted at every point, but the number and identity of the dissenters is rarely disclosed. And their position, if given, is often so mingled with that of the majority that it is difficult to determine which is which. Numerous recommendations are included, involving

changes in legislation, enforcement, and interpretation. But they are hidden in the body of the text and can be discovered only by reading every line.

In substance, too, the *Report* is often disappointing. The Committee accepts the goal of competition but does not distinguish between the cases where competition serves the public interest and those where it may not. It forswears any attempt to determine how far the antitrust laws have succeeded in attaining this goal, where they have failed, and how their effectiveness might be improved. It contributes little to the solution of the more difficult problems of antitrust. Where, for instance, is the bigness that carries market power required for efficiency and progress, and where can bigness be broken up and efficiency and progress preserved? Where is the line to be drawn between those mergers that are consistent with competition and those that are not? Where should vertical integration and exclusive dealerships be held legal and where in violation of the law? In response to such questions, the *Report* lists the factors that should be taken into consideration but does not undertake to say what weight should be given them, contenting itself with the observation that judgment must be exercised.

Instead of coming to grips with the economics of antitrust, the Committee directed its attention to a different task, and a narrower one. What it has done, in the main, is to review and restate the substantive doctrines of the law as they have been developed in the policies of the administrative agencies and the decisions of the courts, indicating where it agrees with these doctrines and where it disagrees. In doing so, it has sought to give guidance to businessmen who wish to comply with the law (or, at least, to avoid conviction for violation) and to the lawyers who advise them, to influence the attitude of officials who enforce the law and the thinking of judges who interpret it, and, to a lesser extent, to persuade the Congress to make changes in the law itself.

Within these limits, what position does the Committee take? Does it approve or disapprove the recent tendency to apply antitrust with greater rigor to industries where firms are large and few? Does it approve or disapprove the accompanying tendency to exempt those trades where sellers are small and numerous and to shift the goal of policy away from the maintenance of competition to the preservation of individual competitors?

In response to the first question, it must be said that the Committee has acquiesced, in the main, in the tightening of antitrust. With respect to enforcement, it fails to follow the lead of the Business Advisory Council in suggesting that the number of cases be reduced by submitting them for screening by an external board of review. And it rejects the proposal that provision be made for advance clearance of business projects and subsequent immunity from prosecution. With

respect to interpretation, too, the Committee accepts, in general, the advances that have been made by the courts.

The *Report* urges no general extension of the rule of reason, agreeing that arrangements fixing prices, controlling production, dividing markets, imposing boycotts, and the like are properly held to be illegal per se. Only in the case of tying contracts does it contend that such holdings now go too far. Elsewhere, as with trade association reporting systems, intraenterprise dealings, mergers, and exclusive contracts, the *Report* recognizes that behavior must be judged by its effects. And here, it accepts existing rules of law, insisting only on the importance of economic analysis. The Committee would not accept identity of behavior, in itself, as conclusive evidence of conspiracy, but it agrees that such identity has circumstantial weight and that conspiracy may be inferred. In its analysis of delivered pricing, the Committee distinguishes between those cases where the practice is adopted independently and those where it is followed collusively. It contends that identical prices at destinations and variable nets at points of origin should not, in themselves, be held illegal. And it proposes that delivered pricing systems be attacked, not as involving price discrimination under the Robinson-Patman Act, but as originating in collusion under the Sherman Act. But it accepts the end result of the decisions that found such systems to be in violation of the law.

In cases where the issue is monopolization, likewise, the *Report* goes along with the decisions handed down in recent years. Monopoly, it says, is the power to control prices and exclude competitors from the market. Its identification requires a definition of the market and proof of the existence of such power. Monopoly itself is not illegal, but monopolization and attempts to monopolize are against the law. Attempts to monopolize are illegal though unsuccessful. They require proof of intent; monopolization does not. The crime of monopolization has been committed whenever monopoly has been deliberately achieved and maintained. And this is true even though the power of the monopolist has not been abused. The Committee flatly rejects the proposal that monopoly be judged by its results. Illegal behavior, it says, "cannot be excused by proof it represents 'progressive' managerial policy or, if defendant is a monopoly, it has been a good one, has performed acceptable social service, or even benefited the consuming public." (*Report*, page 340.) The report shows no disposition to turn the clock back from the 1945 rule of the Aluminum case to the 1920 rule of United States Steel.

With respect to abuses of patent rights, too, the Committee accepts most of the recent developments that have tightened the law. It would not outlaw restrictive terms in individual licenses, but it would condemn enforcement of restrictions through cross-licensing and through agree-

ment among multiple licensees. It would apply the rule of reason to nonuse, to patent pools, and to the acquisition of many patents by a single patentee. Where patents were being used to violate the antitrust laws it would deny verdicts to plaintiffs in infringement suits. The Committee is unanimous in its approval of compulsory licensing as a remedy, a majority of its members insisting that licenses be required only at reasonable royalties, a substantial minority favoring their requirement royalty free.

When it comes to penalties and remedies, in general, the *Report* is cautious. In the summer of 1955, Congress increased the penalty for violating the Sherman Act from \$5,000 to \$50,000, though the Committee had proposed that it be raised to only \$10,000. The Committee would have judges in private suits empowered to impose something less than threefold damages. It condemns the inclusion in consent decrees of remedies the government could not expect to obtain through litigation. It asserts that dissolution "should not be invoked where less drastic remedies will accomplish the purpose." (*Report*, page 355.) The Committee has stood fast, in general, on the substance of the law. But here, and at other points in its discussion of procedure, its report leaves the impression that it would be content to see somewhat less rather than more vigor in its enforcement.

The other major trend in antitrust, as we have noted, has been toward a multiplication of exemptions and a shift in purpose from the maintenance of competition to the preservation of individual competitors. In the first of these matters, the Committee has not gone as far as might be wished. It regards most of the exemptions—such as those for export trade associations, motor carriers, rate bureaus, insurance companies, oil producers, and agricultural marketing agreements—as lying outside the scope of its inquiry, making no effort to pass judgment on their desirability or to appraise the effectiveness of the alternative controls. It recommends action, however, to narrow the exemptions now accorded labor unions and agricultural co-operatives. In the case of labor, it accepts the principles of organization and collective bargaining, but it proposes that unions be deprived of the freedom they now enjoy, under decisions of the courts, to eliminate competition not only in the market for labor but also in the market for other goods and services. In the case of co-operatives, likewise, it accepts the principle of co-operation but recommends that monopoly power attained by other means than co-operation itself be subject to the Sherman Act, even though it is not so employed that prices are unduly enhanced. The Committee is forthright, moreover, in its recommendation that the Miller-Tydings and McGuire Acts be repealed and resale price maintenance again made actionable under federal law.

The *Report* also proposes that further legislative impediments to competition in distribution be removed by overhauling the Robinson-Patman Act. And here the Committee has made its principal constructive contribution. It recommends repeal of the unused criminal section of the law. With respect to quantity discounts, in general, it would change the test of illegality, through reinterpretation, from injury to an individual competitor to injury to competition as a whole. It would rehabilitate the cost defense by adopting principles of accounting that would permit discounts to be justified more frequently by savings in cost. It would retain the present rule of law that makes the good faith defense not merely procedural but absolute. The Committee deplors the proviso under which quantity discounts may be forbidden even though justified by differences in cost. It criticizes the sections under which brokerage must be denied and allowances and services limited, even though earned by buyers, and proposes that they be brought into harmony with the major provisions of the law. It condemns the denial of a functional discount to a wholesaler on that part of his sales that he makes through his own retail outlets, and the requirement that suppliers police distributors to enforce this rule. It denounces Federal Trade Commission orders that forbid all differentiation of prices, proposing that these orders be confined to the prohibition of such discrimination as violates the law. Adoption of the Committee's recommendations would bring this legislation into harmony with the principles of antitrust. Together with repeal of the amendments permitting maintenance of resale prices, it would remove the major legal obstacles to competition in the distribution trades.

In its position on antitrust, in general, the *Report* sometimes advances, sometimes falls back, and usually stands still. But this is not its real significance. The report is significant as a political document because it marks the acceptance, by a group set up to advise a new Republican administration, of the major gains made in the enforcement and interpretation of the law under Democratic administrations during the preceding twenty years. Thus endorsed, the policy of maintaining competition is made bipartisan. The *Report* is significant, too, as a consensus of experts. It shows, first, that expert opinion approves the substantive doctrines of antitrust as they have been developed, in recent years, through the decisions of the courts. And it shows, second, that the experts hold the efforts made, in the same period, to shift the goal of policy from the maintenance of competition to the preservation of competitors to be inconsistent with the logic of antitrust and prejudicial to the public interest. In this light, the *Report* of the Attorney General's National Committee is more to be commended than condemned.

DISCUSSION

GEORGE W. STOCKING: Professors Mason and Brewster both recognize defects in the *Report* of the Attorney General's Committee on the antitrust laws and both make discerning and wise remarks about the problem of antitrust enforcement. But to me the most striking aspect of their comments and of the *Report* is the similarity of attitude they reflect. Their likeness is basic; their differences are superficial.

Mason confines his discussion to the issue of per se rules versus the rule of reason and to the significance of market power in antitrust policy. The rule of reason, he notes, requires courts to examine the effects of an alleged violation to determine whether in fact a violation has occurred. He recognizes that to push judicial inquiry on the effects of alleged violations very far is an invitation to nonenforcement, but happily he observes that the courts rarely push it that far. They have appropriately held that price-fixing agreements are unlawful per se—a doctrine the Attorney General's Committee heartily approves. The courts have also condemned output restrictions, group boycotts, and divisions of markets, and neither Mason nor the Committee finds these arrangements consistent with the antitrust statutes. The problem then is to determine when such unlawful arrangements occur. Both the Committee and Mason recognize that where price fixing or output restriction is allegedly achieved indirectly through trade association activities, all the relevant facts bearing on the alleged violation should be examined. As Mason puts it: "The debatable area is, of course, trade association practices and it is right that this area continue debatable since the range of practices is infinite and there are involved real possibilities of improvement of efficiency."

The Committee's statement is sharper: "On the one hand, there should be swift and certain antitrust prosecution of trade associations utilized to fix prices, restrict production, allocate markets or limit channels of distribution in violation of the Sherman Act. On the other, if their activities actually tend to promote, rather than hinder, competition and preserve the individual firm's independence of decision, antitrust should not inhibit their growth."

Mason notes that although the courts have expanded the area of business practices in which they find a presumption of unlawful activity, they have not broadened the concept of unlawful price fixing to encompass conscious parallelism of action. The Committee's views are similar. The Committee, quoting from the Supreme Court's opinion in *Theatre Enterprises, Inc. v. Paramount Film Distributing Corp.*, states that it is in full accord with the Court's reasoning. As the Committee puts it: "'Conscious parallelism' is not a blanket equivalent of conspiracy." As I read them, Mason's and the Committee's views on the application of the per se principle are quite similar if not identical. Mason himself in discussing the credit items in the Committee's *Report* states that "most important of all" is the Committee's "knowledgeable and effective defense of per se against a threatened encroachment of the rule of reason."

Nor, as I understand them, do the differences in Mason's views and the Committee's on the relevance of market power to the problem of antitrust

enforcement have any great practical significance. The Committee's *Report* says of Section 2 offenses: "Economic monopoly becomes illegal monopolization not only (1) if it was achieved or preserved by conduct violating Section 1 [i.e., through collusion, merger, etc.] but also (2) if it was, even by restrictions not prohibited by Section 1, deliberately obtained or maintained." Mason appropriately points out the specious accuracy of the terms "economic monopoly" and "deliberately obtained or maintained"; and the Committee, to determine their content, was forced to examine the relevant cases. It is on the results of this examination that Mason most vigorously and I think appropriately differs from the Committee. The Committee finds no substantial change in the meaning of these terms as the courts have applied them over the past three decades. Mason correctly contends that the courts have developed the law of Section 2 in two directions. As he puts it: "Market power or, if you prefer, economic monopoly, is recognized in situations that would rather easily have passed muster in 1920; and, the standards of what constitutes abuse of power have been rather stringently tightened." But I see no practical significance to contemporary public policy in these divergent views of the law's development. Historically Mason is right. But both Mason and the Committee now see the law very much alike.

Mason believes that the courts now push inquiry into effects only far enough to reach a reasonable inference as to what they are. The Committee places greater emphasis on the importance of full inquiry, but it finds what the courts have done to be good. The Committee majority is apprehensive that the courts may go astray and it has tried to set up beacons to guide them, but so far the courts have avoided both the rocks of "per se" rigidity and the shoals of overdiligent inquiry.

Brewster—a scholarly exponent of what the law can and cannot do—gives an illuminating discussion of the characteristics of an enforceable antitrust policy. It must be fair and it must be "compliant." Like Mason, he has constructive suggestions to make about forestalling greater concentration through tighter restrictions on mergers, but he makes it clear that the critics of the law must not expect the courts to reform it. The courts will continue to act as courts, not economists. If competition as now enforceable under the statutes is not economically effective, a new and radical legislative and administrative approach to the antitrust problem is called for. Brewster hopes this will be unnecessary, and the Committee finds it unnecessary. Rostow—a vigorous dissenter at certain points, primarily on his right to dissent where, when, and as he pleases—sums up the Committee's position as follows: "For all the divergence of view which has naturally emerged with respect to specific aspects of the law . . . the principal theme of the *Report*, on which we are unanimous, is that Congress and the Courts have developed a reasonably unified and consistent corpus of antitrust law, directed at protecting the economy against substantial and significant limitations on competitive conditions." (*Report*, page 388.) Mason, with minor qualifications, agrees.

To me the major defect in the Committee's *Report* is that it never got around to the job assigned to it: evaluating the antitrust laws in their fundamental aspects. As Rostow in his dissent characterizes the report, it "is largely a review and restatement of the substantive doctrines of antitrust law, to-

gether with an analysis of the procedures through which the laws are enforced." As the majority characterizes it, "the scope of this entire *Report* . . . reflects our concern with marking out, so far as possible, the bounds between legal and proscribed conduct." The *Report* is likely to prove more useful as a guide to businessmen anxious to avoid violating the statutes than to lawmakers wishing to improve them.

The Committee virtually ignores the changes that time has wrought in the structure of our economy, the reasons for it, and its institutional significance. It ignores the specific questions relevant to a study of the fundamental aspects of antitrust policy. What are the basic factors in the national economy making for bigness? Does bigness bring business advantages to a firm without corresponding benefits to society? What is the relationship between size and efficiency? What is the significance of bigness to research and of research to bigness? What is the role of the individual inventor in a corporate economy? What are the economic advantages of diversification and what is its significance to firm size? What are the relationships between small suppliers and the larger manufacturers and between large manufacturers and their distributors? Do suppliers and distributors function as independent business firms or as satellites? How important are advertising and selling outlays to cost? What is their significance to freedom of entry? The Committee could not have been expected to answer such questions, but it would have performed a public service by recognizing the need for answers and by suggesting studies and investigations for obtaining them; for the answers to such questions would provide a basis for sound public policy towards business, little and big. They would get at the antitrust problem in its fundamental aspects.

That the big firms are getting bigger and their economic, political, and social ramifications becoming more extensive, no one will deny. That the little firms are also growing, most will agree. That we will always have a lot of relatively small business units seems likely. But that any one of them (in sharp contrast to the big ones) has a secure place in our economy is doubtful. In truth the precarious position of each leads all to demand that Congress do something to make them more secure. Prodded by the threat of legislative action, the big corporations are now acknowledging paternal responsibility for the welfare of the little ones. Where our so-called "individual enterprise" economy is going is not quite clear, but it is on its way; and under the inflationary influence of a decade and a half of deficit spending it has been a very pleasant way indeed. It has brought us temporarily to a land of milk and honey, and we are enjoying it. Ultimately it may lead to Adolph Berle's "city of God," but I suspect it will be a different city from that which the Attorney General's Committee and its critics would wish to contemplate.

ALFRED E. KAHN: My most serious objection to these three wholly admirable papers is that they are so moderate and discerning. I can find little in them with which to disagree. My recourse will be to draw some pugnacious conclusions from this cloying unanimity and to lay disproportionate emphasis on the exceptions.

Dean Mason and Professor Wilcox express a similar dissatisfaction with

the Committee's *Report*—that it does not assess the effectiveness of antitrust or supply bold new policy guides for the future. With all respect, I think their own papers and, in fact, the entire literature of the last thirty years demonstrate that this is much easier to say than to do. As Hans Thorelli's book makes clear, the antitrust phonograph needle has been stuck in the same groove for a long time. At least since the *Economics of Overhead Costs*, economic theory has not produced any conclusions or insights of use to policy making in this field remotely comparable with the contribution of the *General Theory* to macroeconomics. The concept of workable competition merely restored to economics and to antitrust the common sense that misapplication of the theory of monopolistic competition had temporarily impaired. The *Report* simply reflects this lack of fundamental change in our own thinking.

The reason for this static condition is, I think, that there is very little basically new and valid that can be said about or within the context of antitrust. The laws resist radical amendment; their core is impervious to economic tinkering, because antitrust is an inherent part of our national mores. It is a code of social and antisocial conduct, not a charter of economic engineering. And it will remain so, as long as we retain roughly the kind of private enterprise economy we now have. Dean Mason is apparently resigned to this fact; and Professor Brewster prefers it so.

I certainly do not mean that the vagaries in application and interpretation of the laws during the last sixty years have been unimportant. I agreed with Professor Louis Schwartz that the *Report* should forthrightly have recognized the demise of the old United Shoe Machinery and U.S. Steel decisions. And with Wilcox—and I think Mason, too—I applaud the change. But these decisions were bad law, and probably did not represent the views of the majority of the Supreme Court, even when they were written. And, to return to my main contention, I think the economics of Justice Day's dissent in U.S. Steel and of Judge Taft's opinion in Addyston Pipe are still good enough for most antitrust purposes.

Consider the problem of mergers. Almost all economists writing in this field say that, regardless of what the law does or should do about present business size, it ought to take a very strict attitude toward future mergers. Yet a good economic argument can be made that, in the absence of demonstrably monopolistic motivations or results, the transfer of secondhand business assets from those to whom they are worth less to those to whom they are worth more is socially productive; they will probably add more to real national product in the hands of the buyer than of the seller. Mason's "strict standard," I presume, would permit this probably beneficial economic effect to be easily set aside on the basis of very little evidence of prospective impairment of competition. Why? Because "even at the price of some irrational results," as Brewster puts it, the logic of the law is that certain courses of conduct are inherently suspicious. The law does not condemn market power as such; but it opposes the achievement or even slight enhancement thereof by combination or exclusion. I think, with Brewster, it must be somewhat unreasonable about growth by combination. And I think Mason is advocating the same thing—though it would be fruitful to ask what specific mergers he or I would

disapprove and on the basis of how much and what kinds of evidence. I would say the same about the imposition of exclusive-dealing requirements and, in agreement with what J. M. Clark wrote thirty years ago, about systematic, unregulated price discrimination. But in so doing, I think we are not paying much attention to what economists have been saying in the last thirty years.

If the unchanged economics of antitrust ceases to be the appropriate basis for public policy, we will not have to amend but to abandon that policy and to change radically our present system of free enterprise at the core and government regulation at the periphery. Few economists are prepared to recommend such a course today.

Meanwhile, I suggest we direct more of our dissatisfactions with the current state of competition to the entire range of other government policies that bear on the preservation of economic decentralization, as Professors Adams and Gray have recently done. Procurement, taxation, government research, and public utility control are too important to be left to the specialists. Here is where administrative "ad hocism," based on short-range economic considerations, is really threatening the competitive system, precisely because of the absence of a strong, essentially intuitive if not irrational bias in favor of free entry and dispersion of decision making. And here, I agree with Mason and Wilcox, the *Report* was weakest.

Time permits only a few additional comments:

1. I disagree with Brewster's observation that the *Report* "substantially dulls the cutting edge of per se rules." So do Mason and Wilcox.

2. I disagree also with his feeling that the *Report* is heavily economic in orientation, in the sense of advocating essentially economic tests for the Sherman Act. It is no more so than the Alcoa decision need have been to find that company guilty of monopolization. The statement to which he refers—that monopoly power jointly possessed may be condemned when the "group of companies . . . have acted in concert to gain, pool or hold it"—is not a condemnation of market power as such but only of collusion, combination, or exclusion.

The ironic fact is that Chapter VII is where it is because that is as close as the lawyers could with propriety put it to the back door, through which most of them were quite prepared to throw it. Even there, it is thoroughly hedged with statements—sometimes italicized for good measure—to the effect that any relationship between its economic discussions and the law, living or dead, is strictly coincidental.

3. I cannot accept Wilcox's enthusiastic approval of the *Report's* treatment of Robinson-Patman. I agree with what he says about the brokerage provision, the cost defense, and the treatment of functional discounts. But I cannot see how advocates of the supremacy of competitive considerations can also urge that the good faith defense be both liberalized and made absolute, as the *Report* proposes, even for discriminations that may actually impair competition. It is only a half-truth, at best, to regard price discrimination as a method of competing. It may also be a method of not competing and of exploiting monopoly power, as I argued in my dissent. Thus, for example, when Wilcox expresses no objection to the *Report's* proposal that delivered

pricing systems henceforth be attacked only as originating in collusion under the Sherman Act, I think he underestimates the protection Robinson-Patman offers against price discrimination that seriously impairs competition among sellers, as some of our dissents on pages 217-221 of the *Report* contend.

Moreover, he repeats the refrain about the clear dichotomy between injury to competition and injury to a competitor. In most Section 2(a) cases the distinction has not at all been clear or easy to draw; and, as Joel Dirlam and I have often argued, most criticisms of these cases have failed to provide convincing demonstrations that the effectiveness of competition would be impaired by prohibiting the practice.

Before cheerfully advocating general economic tests for antitrust, we should recognize that in decisions like *Columbia Steel*, *General Foods*, *Times-Picayune* and *Cellophane* courts and Commission thought that was exactly what they were applying!

CLARE E. GRIFFIN: We have heard three excellent papers and with most of the content of them I am in agreement. However, there seems to be an implication in some of them (particularly, if I understand it correctly, in Dean Mason's paper) that some degree of restraint upon competition can or should be excused in particular cases, if it is accompanied by or contributes to "efficiency." With this thought, I am not in agreement. Since I have myself, in the past, urged the importance of efficiency and other evidences of socially desirable performance, I would like to take this opportunity to clarify my position as to the uses and the limitations of economic performance tests in antitrust cases.

I think that an over-all economic appraisal of an industry or a company from the point of view of its social usefulness in terms of efficiency, progressiveness, and so on, can properly be considered by the prosecuting agencies and by the courts and that more use could well be made of this approach than has been done in the past. However, to regard a favorable appraisal of this kind as a legitimate excuse for monopolizing or for some degree of restraint of trade is to carry the performance tests beyond their proper usefulness.

It is fatuous to imagine that judges can be freed entirely from the necessity of making value judgments, but the principle of the rule of law requires that these judgments should be reduced to the feasible minimum. To say to the courts that they should overlook acts which would otherwise be a violation of the law because the results were socially good would represent too great a delegation of power and, in effect, place men above laws. We cannot afford to say in a much simpler area of law that murder is prohibited except when it can be established that the community is better off for the removal of the victim, nor can we afford to make an analogous exception to the prohibitions of the antitrust laws.

For this basic reason, if a clear-cut choice is presented between the preservation of competition on the one hand and the attainment of efficiency and other socially desirable goals on the other, we must under the rule of law choose the former. However, if the approval of competition by economists in a free-market system is well taken, this "agonizing choice" should not often have to be made. If the choice is too often presented, I suggest that it arises

because of an unrealistic concept of that competition which must characterize an effective free-market system. I believe that more intensive and extensive study of the working of our economy and less emphasis upon the economic models which are convenient for intellectual analysis would produce a realistic concept of competition which very rarely would be in conflict with the requirements of good performance in our modern economy.

Such a concept, I think, would be very close to the one which was commonly accepted before we tried to sharpen the concept of perfect competition; that is, that competition represents such a degree of independent rivalry as in fact does check and limit the market power of sellers (or buyers). I realize that most economists today give lip service to the concept of workable competition, but when they come to define the concept many of them apparently find it difficult to get very far away from the models of pure and perfect competition in which most teachers of economics have a powerful vested intellectual interest. Necessary and sometimes important deviations from this ideal are indeed made. But they are made grudgingly, in contrast to the late Professor Schumpeter's forthright appraisal that perfect competition is not only impractical but it does not deserve to be accepted as the ideal. I suspect that this attitude may have characterized some of my colleagues on the Attorney General's Committee, and is perhaps reflected in the discussion of workable competition in the *Report*. An example is in the emphasis given therein to large numbers and ease of entry as structural features necessary for effective competition. Many businessmen and others will regard these as quite unrealistic when applied to our most important and productive industries.

This concept of effective competition as only a more or less watered down version of the perfect competition ideal leads many spokesmen of big business and some economists to suppose that in many industries we have to choose between competition and social effectiveness. And this remark applies not only to laymen but to Professor Schumpeter, who was led to write eloquently in support of monopolistic practices. I am convinced that most, if not all, of the monopolistic practices about which he wrote are entirely consistent with a realistic and useful concept of competition. If competition is to retain the prestige and general acceptance as the regulator of our economy, which it must have if we are to retain a free system, economists will be well advised to accept freely and ungrudgingly a definition of it which makes sense to businessmen, lawyers, and others in the context of the modern world.

If this be regarded as counsel to economists, it at the same time suggests a word of advice to the spokesmen of big business. That advice is: You cannot expect to defend yourselves against an antitrust charge of substantially impairing effective competition by merely pointing to your good record, nor should you feel indignant if, having made a brilliant record of service to the community, you are nevertheless attacked by those charged with enforcement of the antitrust laws. To defend yourself it, of course, should be helpful to show that your record has been good, but you should be able to go a step further to show (or the government should not be able to show the contrary) that your good performance is not merely the result of your good will and admirable motives, but that it is required of you as the price of your success, and that this compulsion to serve the public well comes from real or potential

rivalry of others who are seeking against you to gain the patronage of that public. If that positive showing is not feasible, you should at least be able to demonstrate that you are precluded from antisocial behavior by the effective competition (actual or potential) of your business rivals. The plain fact is that the law does not require efficiency. It does proscribe monopolizing and the limiting of competition.

As to the question of monopoly, an analogy to political dictatorship is suggestive. In the liberal philosophy there is no such thing as a good dictator. For the evil thing about a dictator is that he is a dictator, not the evil things that he does. To a true liberal he would still be objectionable if he did only "good things." It is perhaps not stretching the analogy too far to say that there is no such thing as a good monopolist, for the question of good or evil here is not in the things done but in the fact of being or, more strictly under our antitrust laws, of deliberately attaining or trying to attain a monopoly. That, at least, I believe, is the competitive philosophy and, as I understand it, it is the spirit of the antitrust laws.

From the point of view of the courts and the enforcement officers, the important question in any case is: Does the existence and the activities of rivals place an effective limit on the otherwise unbridled power of individuals or firms? This is a simple question, but as Dean Mason says in his paper, "simple facts are not simply determined."

In the determination of the fact of effective workable competition there is room for at least two kinds of evidence. One of these is in the structure of the industry and the other is in the performance of the company or industry. I would personally go further than does the Attorney General's *Report* in stressing performance as evidence of competition, but not as an excuse for its impairment. One reason for this preference is that I think we can get better general agreement on the desirable social results of competition broadly conceived than we can on the detailed features of the competitive model or structure that will produce them. For instance, I believe that the common generalization that a large or very substantial number of independent firms is a necessary structural feature for a competitive society is of very questionable validity in our present industrial economy. On the other hand, I think that few people would doubt that a high level of efficiency, progressiveness in terms of cost reduction and improved products, wide distribution of products, a downward tendency of prices and shifting positions of members of the industry on the basis of comparative performance—that all of these would generally be accepted as socially good results and, more to the point, that they do create a presumption that effective competition is present. If we really believe in competition as the best regulator of the economy, I do not see how we can very well deny the latter proposition.

This presumption is, of course, rebuttable, but, so also is the structural test or evidence provided by large numbers. For example, as to the automobile industry it was apparently generally felt in the past year or two that the mergers of some of the small companies, which of course reduced the number of firms, would in fact enhance the effectiveness of competition. In recognition of this point in its treatment of mergers I think the report is on sound ground.

Both the "structural" approach and the "performance" approach are appropriate in considering questions of competition and monopoly. In both cases they are evidences of the existence of competition or monopoly or of limitations upon competition. The argument for the structural tests is that theoretically we should expect effective competition to flow from certain structural features of an industry. The argument for performance tests is that results are, in fact, being attained which are more consonant with competition than with monopoly. Neither is conclusive, but both have probative value. I conceive that the latter has received less attention, especially from economists, than it deserves. The one represents deductive reasoning from causes to probable results; the other from observed results back to probable causes.

Another question raised here today was between the *per se* treatment of alleged violations and the rule of reason. The considerations just mentioned about the two types of evidence seem relevant here. The basic question is as said before: Has effective competition been unduly limited? As between the *per se* and the rule of reason approach, the practical question is: How easy is it to get the answer to a simple question? Admittedly, it is sometimes easy (as in most cases of outright price agreements) but I submit that more often it is not easy unless, indeed, you want to set up a classroom definition of competition which will appear to most of the general public to be quite unrealistic.

GEORGE J. STIGLER: In the prospectus for the National Committee for the Study of the Antitrust Laws, Professor S. Chesterfield Oppenheim hoped to find the solution to the antitrust problems posed by oligopoly in the doctrine of Workable Competition (his capitals). He asked Congress to "adopt the concept of Workable Competition," and he expected the economists on the National Committee to "formulate tests of Workable Competition. These should have industry or market operational significance and should be capable of translation into steps toward collection of meaningful facts to show whether the tests have or have not been met in any given factual situation." ("Federal Antitrust Legislation: Guideposts to a Revised National Antitrust Policy," 50 Michigan Law Review 1188, 1236, 1952.)

Despite the fact that these goals were not fulfilled, some faint echoes of this optimism are still found in the *Report*, in which Chapter VII ("Economic Indicia of Competition and Monopoly") discusses at some length the characteristics and indicia of workable competition, contrasts them with perfect competition, and disavows any relevance to the law of antitrust. But there are most assuredly no operational criteria capable of being applied concretely to any given industry with any likelihood of reaching an unambiguous appraisal of the workability of competition.

As I understand the doctrine of workable competition, it consists of five main propositions:

1. Perfect competition is not a practically attainable goal of antitrust policy. It is not seriously disputable that the scientific concept is not a literal goal of policy.
2. Monopolistic competition theory, by putting all industries under one label, fails to recognize quantitatively important differences in monopoly

power, and thus provides no guide to policy. The emphasis upon this proposition seems to me the main pedagogical contribution of the doctrine of workable competition.

3. The doctrine of workable competition is preferable to that of perfect competition as a normative criterion by which to judge industries because the former doctrine pays due attention to the progressiveness of an industry. This is not a true difference: The concept of competition can be generalized to deal with historically developing industries as well as those in a stationary economy, but the extension must be loose and intuitive until we learn much more of economic progress. All that the doctrine of workable competition has to say on this subject is that more progress is preferable to less.

4. The doctrine of workable competition is developing a list of meaningful and manageable criteria of workability. This I deny. If we may judge by the *Report* or by the general literature, no progress is being made in this respect. Of the ten factors bearing on the identification of workable competition listed in the *Report*, the main ones—adequate numbers, freedom of entry, absence of collusion, and absence of persistent price discrimination—are simply parts of the theory of perfect competition restated in homely language. The other factors are either ambiguous symptoms of monopoly also discussed in the ordinary theory of competition (e.g., excess capacity) or are hypotheses on market behavior whose exploration will surely require the use of this theory.

5. To determine whether any industry is workably competitive, therefore, simply have a good graduate student write his dissertation on the industry and render a verdict. It is crucial to this test, of course, that no second graduate student be allowed to study the industry.

The doctrine of workable competition has a purpose which is uncommon in the history of economics: it purports to be a rule of applied ethics which will tell us in each case how social policy should proceed. Because the rule does not focus upon the alternatives open to the society in a given situation, it is misleading: sometimes nothing can be done with an unworkable industry; sometimes a workable situation can be improved. The rule fails to recognize that the society's standards of acceptable performance change over time, sometimes fairly rapidly. Since the rule is aimed directly at economic policy, it is peculiarly unsusceptible of scientific improvement: it attracts all the protagonists, who seek to bend it to their purposes.

I therefore accept the view of one group of the National Committee—and I cannot refrain from expressing my admiration for the felicity of their language—when they say:

[We] stress that the "doctrine" of workable competition is only a rough and ready judgment by some economists, each for himself, that a particular industry is performing reasonably well—presumably relative to alternative industrial arrangements which are practically attainable. There are no objective criteria of workable competition, and such criteria as are proffered are at best intuitively reasonable modifications of the rigorous and abstract criteria of perfect competition. (Page 339.)

The workably competitive industry, like the workable wife or the workable university, is a concept which is unlikely to assist in the study of the subject to which it pertains.

Dean Mason's discussion of the nature of per se and rule of reason viola-

tions of the antitrust laws is valid and penetrating. The traditional criticisms by economists of the rule of reason seem to me misdirected. It is quite true that some egregious decisions were made under this label. A nonlawyer (or a noneconomist) cannot confidently distribute the blame for these decisions among inadequacies in the government's preparation of the case, scientific inadequacies of economic theory, errors in judicial reasoning, and the possible effects of the rule of reason, but I should think that the last cause was either unimportant or nonexistent.

Dean Mason points out that *per se* offenses are generally those which economic theory says are activities obviously designed to suppress competition, and rule of reason cases are those which require fuller analysis. All the forms of behavior which economic theory inevitably links to the suppression of competition are not yet *per se* offenses, however. For example, stable market sharing by a few firms is strictly equivalent to division of territories and should be treated as a *per se* violation. Yet the government, when it withdrew the suit against the meat packers, acted as if it believed that market sharing would not sustain a conviction.

Professor Brewster's eulogy of the principles of fairness and feasibility is wholly persuasive, and there is no doubt that we must keep the nature of the administrative process in a democracy in the forefront when we are discussing concrete antitrust policy. But one might get the impression that these excellent principles have an almost decisive bearing on the substance of antitrust policy, and this I would deny. Indeed, if correct procedures dictated correct policy, we could dispense with all of the relevant experts in our society except the lawyers—a gruesome picture; and if all policies were simply and directly capable of correct administration, we could keep the experts and dispense with the lawyers. It is the task of the guardians of justice and litigation to tell us how to achieve what we have already decided upon in such a manner that we shall not violate the canons of fairness and feasibility, as well as the economist's canons of frugality and fectiveness.

Brewster is concerned that oligopolists can arrive by logic and experience and without explicit collusion at noncompetitive market arrangements, so that it may be necessary to examine detailed performance to discover whether an oligopolistic industry is, in his old-fashioned phrase, workably competitive. It is possible, indeed, that each oligopolist, colluding only with his nasty little electronic computer, will reach a policy such as openly conspiring oligopolists would reach—and perhaps we should look into conferences on wiring circuits. I suspect, however, that we economists have much exaggerated the importance and scope of such tacit collusion.

Tacit collusion based upon "oligopolistic rationality" is as inferior in efficiency and flexibility to overt collusion as mental telepathy is to a telephone. A large industry must make an intricate pattern of decisions at any time for the many product and geographical areas in which it operates, and these decisions must be revised fairly often. It has not yet been shown that effective co-operation would be possible without leaving a dozen large evidences in the institutions and practices of the industry. A court that was satisfied with the evidence in the American Tobacco case, or for that matter in the Cement

Institute case, can probably be persuaded of the presence of substantial anti-competitive elements in most oligopolistic industries where they exist.

The more pressing problems posed by oligopoly are not in the area of conviction but in those of diligent and competent enforcement and of remedy. Brewster quotes with approval the well-known statement of Judge Wyzanski on the necessity for great judicial restraint in the use of dissolution as a remedy. I must confess that I find this statement quite unhistorical. No one expects the federal judiciary to engage in unrestrained trust-busting. Also there has been no instance in which a court dissolution order has occasioned serious complaint from either Congress or the community at large. What Judge Wyzanski should have explained is why the judiciary is giving this remedy less and less often. Those of us who wish to see greater use made of what is often the only real remedy are not reckless innovators; we are simply traditionalists who wish to regain the 1911 level of use of the remedy of dissolution.

THE CHANGING PATTERNS OF COMPETITION IN TRANSPORTATION AND OTHER PUBLIC UTILITY LINES

THE COMPETITION OF LONG-DISTANCE MOTOR TRUCKING: FARM AND INDUSTRIAL PRODUCTS AND SUPPLIES

By CHARLES A. TAFF
University of Maryland

When competition in intercity motor transportation of property is discussed, there is scarcely any stopping point. The effect of motor competition upon rail transportation is probably the most widely discussed aspect although the effect of private and exempt forms upon public for-hire motor transportation, of specialized motor common carriers upon general commodity common carriers, of contract carriers upon common carriers, and the effect of regulation upon competitive relationships are some other facets of this topic which come to mind.

It is not possible to discuss all the phases of competition in long-distance motor trucking in this paper. Only certain aspects can be covered. Some phases of certain of the proposals of the Presidential Advisory Committee on Transport Policy and Organization¹ which deal with motor transportation will also be briefly reviewed.

In a broad grouping of motor carriers, there are public or for-hire carriers and private carriers. Public or for-hire motor carriers operate as common carriers, contract carriers, and carriers that are exempt from economic regulation under the Interstate Commerce Act. Private carriers are exempt from federal economic regulation, also. However, all carriers operating interstate are subject to safety regulation.

There are more diverse types of operations in the motor carrier field than in any other field of transportation. In addition to common carriers, contract carriers (which may be highly specialized in their operations), and exempt for-hire carriers, there is a diversity of common carrier operations. Some motor common carriers have the authority to haul general commodities. In this case a carrier may operate, in terms of commodities to be transported, in a manner comparable to railroads; that is, in the acceptance of any and all commodities. Many certificates of motor common carriers, however, are granted with the

¹ Presidential Advisory Committee on Transport Policy and Organization, *Revision of Federal Transportation Policy* (U. S. Government Printing Office, April, 1955). The three members were the Secretary of Commerce, Chairman, the Secretary of Defense, and the Director of the Office of Defense Mobilization. There were four other *ad hoc* participating members.

usual exceptions, which are dangerous explosives, commodities of unusual value, household goods, commodities in bulk, and those requiring special equipment. Even though this type of common carrier is designated as a carrier of general commodities, there is a limited range of commodities which it may carry. The exceptions which have just been listed have given rise to specialized carriers that are authorized to carry a single commodity or a commodity group. Tank truck carriers, household goods carriers, and automobile transporters are some of these specialized carriers.

The development of intercity trucking introduced a very significant competitive force into the transportation field. Its effect was felt almost immediately and, by the early thirties, it had become a matter of concern to the railroads. In 1937, which was the first year for which the Commission received reports after federal regulation of motor carriers began, there were 54 trucking companies which reported revenues of more than 1 million dollars each. By 1955 there were more than 853 motor carriers which reported annual revenues of 1 million or more.

During the period since the thirties, except for the war years in which gasoline rationing, rubber shortages, and manpower restrictions curtailed motor carrier operations, there has been a steady increase in the percentage portion of intercity freight ton-miles carried by motor carriers. Motor carriers, both public and private, hauled 9.1 per cent of the intercity freight ton-miles in 1946. This figure increased to 19.1 per cent in 1954, based on estimated ton-mile figures for that year. For the same years, the percentages for railroads were 67.3 per cent which decreased in 1954 to 49.5 per cent. The total of intercity ton-miles carried by public and private carriers in 1946 was 894,597,000 and in 1954 was 1,124,300,000. Significantly, then, with an expanding market represented by increasing ton-miles, railroads have secured a decreasing share. In the period since World War II, the motor carrier share of total traffic has more than doubled while the railroad percentage of total traffic has declined by about one-fourth. Motor carriers did not account for all of the rail decrease but they continued during this period to divert traffic from railroads as well as developing new traffic.

It is recognized that motor common carriers of general commodities have provided effective competition to railroads, but another facet of motor competition is that which is provided by specialized motor carriers. There has been little recognition of the fact that these specialized common carriers have made particularly important inroads into rail traffic. For example, the increase in tons carried from 1950 through 1954 was greater for Class I (those grossing over \$200,000 annually) specialized commodities carriers than it was for Class I common carriers of general commodities. Using the years 1947-49 as an index of 100,

Class I common carriers of general commodities showed an increase from 146 to 159. During the same period motor common carriers of special commodities showed an increase from 130 to 154.

The factor of specialization may be significant in the consideration of competition between rail and motor, since in specialization a motor carrier can emphasize particular service features. Inland water transportation and pipelines are highly competitive with railroads in respect to those commodities which they transport and both are specialized as to commodities carried.

One group of specialized motor carriers—the household goods carriers—has developed a service which has enabled these carriers to make tremendous inroads in the household goods traffic which formerly moved by rail. It is estimated that household goods carriers by motor vehicle move over 90 per cent of the total intercity volume of household goods. Furthermore, this has been an expanding market in the past decade, for our population has shown greater mobility.

This traffic, which formerly moved entirely by rail and which now moves primarily by motor, is traffic with which railroads should be able to compete on the basis of rates, but the service advantage via motor is so great as to virtually preclude this. Surprisingly enough, surface freight forwarders utilizing rail transportation have successfully developed traffic in the movement of household goods.

On the other hand, motor carriers of household goods are engaged in a competitive struggle among themselves with several levels of rates being charged. The difference in the rate on a specified quantity of household goods between an origin and destination 2,500 miles apart will vary as much as 20 per cent, depending on the motor carrier selected.

There are other motor specialized carriers, such as automobile transporters and tank truck carriers, which have made extensive growth. Their ability to compete effectively in rates and service with rail carriers for the particular commodity or commodities which they are authorized to transport has accounted for their expansion.

Since World War II there have been a number of studies on federal transportation policy made by Congress, government agencies or departments, and organizations outside the government. The latest government report, that issued by the Presidential Advisory Committee on Transport Policy and Organization, contains four broad categories of recommended actions. It suggests (1) revising the National Transportation Policy as declared by Congress; (2) revising statutory provisions involving rates so that there would be greater reliance placed upon competitive forces in rate making than currently exists; (3) a number of actions to strengthen common carrier transportation includ-

ing redefinition of private carrier by motor vehicle, redefinition of motor and water contract carriage, and repeal of the bulk commodity exemption applicable to water carriers; and (4) amendment of statutory provisions regarding special government rates (Section 22). If all these proposals were followed, the net effect would be to liberalize certain portions of the Interstate Commerce Act and make other portions more restrictive.

The Committee's *Report* was reduced to legislative form in S. 1920 and H.R. 6141 and H.R. 6142 which were introduced in the Senate and House "by request." The transportation and communications subcommittee of the House Committee on Interstate and Foreign Commerce conducted a four-day preliminary hearing in September, 1955, with further hearing of this Committee and the Senate Committee on Interstate and Foreign Commerce expected early in 1956.

Immediately following the issuance of this report, railroad spokesmen endorsed it, whereas representatives of motor, water, and surface freight forwarders opposed it. The limited House committee hearing further pointed up the conflicts among the modes of transportation, particularly rail versus motor and water. Shipper reaction to the report has been surprisingly limited in view of the proposals and their anticipated effects. It would appear that both Commission and shipper reaction would be of material assistance in determining the feasibility of the Committee's *Report*.

In order to inject a greater degree of competition into regulated transportation, the *Report* recommends the revision of four aspects of the current statutory provisions covering rates; namely, maximum-minimum rate control, suspension powers, long- and short-haul clause (Section 4), and volume freight rates. Because of time limitations only the first of the rate recommendations will be discussed.

This proposal would limit the authority of the Interstate Commerce Commission to a determination of the reasonable minimum or maximum rates with no change in existing provisions making undue discriminations and preferences unlawful. Whereas the Commission, after hearing, under the current provisions of the Act may prescribe the maximum and/or minimum rate or precise rates if the rate investigated is unreasonable or unjustly discriminatory or unduly preferential, the *Report* recommends that only minimum rates or maximum rates may be prescribed.

Under this proposal, rates could be reduced on competitive traffic while the rates of the same carrier on noncompetitive traffic would not need to be reduced. The difficulty for motor carriers in rate reductions of this kind is that practically all motor carrier traffic is competitive with rail traffic, whereas there are important segments of rail traffic

which are noncompetitive. Thus regulated motor carriers of general commodities do not have blocks of noncompetitive traffic which they may fall back upon in a competitive struggle that would carry part of the burden in such a struggle.

Prior to the development of intercity motor carriers, the rate structure of railroads reflected the influence of the value of service consideration in existing rail rates. Generally, rates were relatively high on desirable traffic as well as on shorter hauls, since such traffic could pay the higher rates. Since the railroads were virtually the only means of transportation for such traffic, the higher rates did not occasion the loss of much volume of this type of traffic. The revenue derived from these rates enabled railroads to establish low rates on some traffic when this was almost mandatory if there was to be movement of these commodities.

The value of service consideration in rate making which was heavily relied upon by railroads prior to the development of motor transportation resulted in a rate structure which was particularly vulnerable to the type of service offered by motor carriers. The relatively high rail rates made it possible for motor carriers with a faster, as well as a more complete, service to render such service at the same or lower rates.

When motor carriers first entered the field of transportation they were, in the main, very small businesses and had little interest in or knowledge of their costs. It was easier for them to adopt the established rail rates. Subsequently, modifications were made in motor rates in particular instances where the rail rate structure was not satisfactory, in which cases rates were raised or lowered in relation to rail rates. Using this method of rate making, an expanding and vigorous motor carrier industry has been developed.

Regulated motor carriers are increasingly making use of costs and are developing a more realistic rate structure, although much more needs to be accomplished along these lines. The use of the test of rail rates as the basis for establishing motor rates is still too prevalent. It is clear that the range within which motor carriers are able to reduce rates below fully allocated costs to meet competition is much less than that of railroads. The fact that motor carriers frequently have not used a cost basis in making rates because they are competing with railroads has perhaps caused them to lose sight of the fact that in so doing they may be encouraging greater use of private carriage.

Generally, rates should reflect the relative costs and differences in service of the different agencies of transportation insofar as it is practicable. The ICC does not have a prescribed formula in determining rate matters. It is guided by the provisions of the Act and has as its objective the attainment of a strong transportation system as outlined

in the National Transportation Policy. Some of the regulatory tests applied to rates which have been established to meet competition are: they must be reasonably compensatory so they will not cast a burden upon other traffic; they must not be lower than is necessary to meet competition; and they must not result in a violation of any section of the Interstate Commerce Act.

The changes proposed in the report by the Presidential Advisory Committee would require changes in the National Transportation Policy. The National Transportation Policy and various sections of the Act [Sections 1(5), 2, 3(1), 216(d), 305 (c), 404 (b) and (c), 15(2), 216(i), 307(f), and 406(d)] accord carriers the right to compete for traffic without restricting their efforts to traffic for which they have a cost or service advantage over their competitors. The present National Transportation Policy, combined with the general rule of rate making contained in Section 15(a), has been interpreted to mean that competitors shall have an opportunity to secure a share of the traffic available regardless of the inherent cost and service advantages which one competitor may have over another in a given instance. It should be pointed out that Congress determines the basis upon which competition among the various agencies of transportation shall be conducted, since it has by statute established the general rules. The ICC does not decide upon what basis the competitive struggle shall be conducted but merely applies the general rules of guidance given it by Congress. We should not lose sight of the fact that the implementation of our National Transportation Policy by the ICC has made available to shippers transportation alternatives which are unparalleled in our history, and significantly this has been accomplished under private ownership.

In an effort to strengthen the system of common carrier transportation, there are a number of recommended changes to the Interstate Commerce Act dealing with contract, private, and exempt motor transportation contained in the Presidential Advisory Committee *Report*. These proposed changes have been designed to put competition between common carriers and other forms of carriage on a more nearly equitable basis.

Competition between different types of motor carriers—for example, common and contract—and that which is provided by motor carriers not subject to economic regulation, including both private and exempt for-hire carriers, to the for-hire segment of motor transportation and to rail transportation is perhaps not as well known as competition between rail and motor regulated for-hire carriers, but they are nevertheless of great importance.

Economically regulated intercity motor contract carriers are basically independent contractors whose transportation service is specified and

limited by an individual contract which calls for a service specialized to meet the peculiar needs of a particular shipper or a limited number of shippers and operates to make the motor carrier virtually a part of each shipper's organization. Generally, contract carriers handle freight in truckload quantities. These carriers carried 2.8 per cent of the total intercity motor freight ton-miles in 1946 and in 1953 the percentage was 3.8 per cent. In contrast to this in the prewar years of 1939 and 1940, the figures were 9.0 per cent and 5.4 per cent, respectively.

The Presidential Advisory Committee *Report* recommends a re-definition of motor contract carriage to be transportation which is for-hire but in other respects is equivalent to bona fide private carriage. This would appear to mean the type of contract carriage in which the vehicle is dedicated to the shipper. Contract carriage which would not fall within this definition—and there are a number of such carriers—would be allowed to convert to common carriage where the holder of a contract carrier permit made application within a specified time and showed that it was engaged in bona fide for-hire transportation which was not contract carriage as defined.

Another recommendation contained in this *Report* dealing with contract carriage is that the Act be amended to require the publication of actual rates charged rather than minimum rates. At the present time, if a motor contract carrier has a contract with but one shipper, the schedule which is filed with the Commission must contain the rate which is actually charged this shipper. Where the contract carrier serves more than one shipper, at least one of the shippers served must be charged the minimum rate which the carrier has on file with the Commission.

The publication of all rates charged by contract carriers, it is felt by some, will permit common carriers to compete more effectively. It seems questionable, however, that this will accomplish what is anticipated because rates of contract carriers are substantially lower than common carrier rates. Furthermore, operating costs of contract carriers are below those of common carriers, which makes it unlikely that common carriers could compete profitably at the contract carrier rate level.

The increased attention which is being focused upon the competitive situation which is created by private and exempt for-hire motor carriage is not due to any great increase in the traffic carried by these carriers in terms of relative percentages, because in terms of percentages the traffic hauled by motor carriers not subject to economic regulation has only increased from 62.7 per cent in 1946 to 64.7 per cent in 1953. Those years, however, were years of steady growth for the entire motor carrier industry, and the increase in motor carriage not

subject to economic regulation in terms of ton-miles was more than 160 per cent. Since almost 65 per cent of all intercity ton-miles accounted for by all types of motor carriers is transported by private and exempt for-hire motor carriers, the competition provided by these motor carriers is very significant.

There are a number of factors which have motivated shippers in their use of private transportation. For a particular shipper, a single factor may be of sufficient importance to justify his use of private carriage whereas in other instances it may be a combination of factors. Some of these are: (1) equipment may be leased instead of purchased, thereby avoiding investment in this item; (2) the general freight rate increases which have accentuated increased emphasis upon transportation economies; (3) the 3 per cent excise tax on freight charges of for-hire carriers which does not apply to private carriage; (4) lower state fees that apply on private trucks in many states, thus providing a margin of operation below for-hire carriers; and (5) service aspects, such as more prompt delivery, handling of emergency shipments, and arranging time of receipt and delivery of goods.

The Interstate Commerce Commission was called upon in an early case to determine the dividing line between private and for-hire carriage. The Commission, in this case, stated that persons engaged primarily in transportation for compensation with a purpose to profit from the transportation charge were for-hire carriers although each was the owner of the goods transported while in transit, was transporting them for the purpose of sale, and may have had some characteristics of a merchandiser. (*Woitishek Common Carrier Application*, 42 MCC 193, 1943.) Early cases, such as this, established the status of the private carrier based upon its primary business.

After World War II and the attendant growth of long-distance private carriage, there were two important cases—the Lenoir and Schenley cases—in which the primary business test was reaffirmed. (*Lenoir Chair Co. Contract Carrier Application*, 51 MCC 65, 1949, which also embraced *Schenley Distillers Corp. Contract Carrier Application*.)

From these and earlier cases, it appears that if the facts establish: that the primary business of an operation is that of transportation for compensation, the for-hire carrier status is established even though the operator may be the owner of the goods at the time the goods are transported and may be transporting them for the purpose of sale; and that if the primary business of an operator is found to be that of manufacturing or some other noncarrier commercial enterprise, then it must be determined whether the motor operations are in bona fide furtherance of the primary business or whether they are conducted as a related or secondary enterprise with the purpose of profiting from

the transportation performed. The Commission has stated, however, that a private carrier is not precluded from realizing an incidental profit in the conduct of its motor carrier operations without forsaking or endangering its private carrier status.

For-hire carriers urged that the factor which should be controlling as to what constitutes private carriage is whether such operations are performed for compensation, but this was rejected by the Commission, the case then being carried to the Supreme Court which upheld the Commission's primary business test. (*Brooks Transportation Co., Inc. v. United States*, 340 U.S. 925, 1951.)

There have been numerous instances in which a private carrier of commodities moving in one direction has sought authority from the Commission to operate as a for-hire carrier on the return haul. The Commission has pointed out that it objects to combining such public and private functions in which part is subject to economic regulation and the other part is not. (*Geraci Contract Carrier Application*, 7 MCC 369, 1938.) The disadvantage of well-balanced traffic in both directions should not be overcome, it feels, by the Commission's grant of authority to operate as a regulated carrier in one direction, thus giving the private carrier a competitive advantage over a regulated for-hire carrier.

In spite of the Commission's careful delineation of what constitutes private carriage, there is some traffic which moves under the guise of private carriage which actually is not. This is termed the "buy and sell" activities of some so-called "private carriers." Some manufacturers which deliver in their own trucks articles which they manufacture or sell, purchase merchandise at or near their points of delivery and transport such articles to their own terminals for sale to others. Sometimes arrangements are made with the consignee of such merchandise for the buy-and-sell arrangement in order that the consignee may receive transportation at a reduced cost. There are some truck operators that engage in the buy-and-sell type of activity in both directions by obtaining merchandise and transporting it to customers at a delivered price, the price being the cost of the product plus an additional charge, which is usually less than the cost of transportation by for-hire carriers. Such private carriers do not own or purchase any of the products except for immediate transportation and delivery to a customer who has already placed his order.

There is an increasing frequency of rate cases before the Commission in which diversion of traffic to private carriage is cited as a fact that will occur unless a reduced rate is permitted to become effective. For example, in *I. & S. Docket No. M-6123* (August, 1955) a shipper calculated its private carriage at 26.6 cents per mile and contended it could operate its own trucks between two points 348 miles apart and

return empty at less cost than the 86-cent rate which it had been paying to a motor common carrier. Further, the shipper said that it could move large quantities of sugar, canned goods, and other items on some return trips which would result in substantial diversion of traffic from common carriers. The Commission permitted a rate reduction to 72 cents with a minimum of 23,000 pounds under which the earnings to the common carrier would be greater than those under the previous rate of 86 cents with the minimum of 18,000 in order to prevent diversion of the traffic to private carriage. Regulated for-hire motor carriers with traffic moving in both directions should be in a position ratewise to meet private motor carrier competition if their rates are more closely related to costs.

The use of intercity private carriage by business organizations cuts into the truckload fabric of common carriage. This traffic, which has previously moved by common carrier, is lost when the business organization turns to private carriage. The traffic which the private carrier cannot haul or does not want to haul is left to for-hire carriers. Very often the traditional rate structure of motor common carriers when applied to this residual traffic does not provide sufficient margin for the for-hire carriers to provide adequate service over the long run if an increasing amount of traffic is of the residual type.

The *Report* of the Presidential Advisory Committee recommends a redefinition of a private carrier by motor vehicle which would limit the operations of a private carrier to the distribution of the owner's products and supplies from plants, distribution centers, and the return haul of materials to be used in its own operation. The *Report* states that legitimate private carriage is not an issue but that private carriage has been used in some instances as a subterfuge for engaging in public transportation. It is the infringement of the latter type of private operations upon the field of common carriage that prompts the recommendation.

The *Report* indicates the need for remedial action in the form of more effective regulation of private carriers or legislation to delineate more adequately the proper place and status of such carriers. In spite of the two alternatives that are listed, the recommendation which is made is to enact legislation to delineate.

Under the redefinition of private carriage recommended in the *Report*, those private carriers which have previously been legally operating but whose operations would not be permitted to continue as private carriage under the new definition could be authorized to operate as contract or common carriers if they made application within a specified period.

There seems to be no misunderstanding regarding the Commission's

present interpretation of private carriage. It is the lack of adequate Commission staff to insure that regulation is adhered to which has resulted in some private carriage which in reality is for-hire.

Motor carriers engaged in moving certain commodities for compensation in interstate commerce are specifically exempt from economic regulation by the Interstate Commerce Commission. The most important exemption in this category is the one covering agricultural commodities (not including manufactured products thereof), livestock, and fish. Although the volume of traffic which moves in exempt transportation is large, there are no figures to show the total volume of exempt transportation. The Commission has estimated that there were over 50 per cent more exempt carriers operating interstate in 1955 (operating 250,000 vehicles) than there were regulated common and contract property carriers in that year.

Exempt transportation has complete flexibility in that any rate may be charged and any territory may be served. Anyone can start an interstate motor for-hire service carrying exempt agricultural commodities at any time without securing operating authority, including railroads.

There are many examples of motor carriers starting on a shoestring during a depression period, but it is rather surprising to find in a period of high employment and prosperity, as 1955 has been characterized, that some exempt for-hire carriers start operations by securing advances from shippers on transportation to be performed in the future, which advances are then used to provide the down payment on a truck with which to perform this transportation. The well-established exempt for-hire carriers resent this type of carrier, because carriers which operate on a shoestring are apt to cut rates drastically in order to meet payments on their units.

The agricultural commodities exemption originally was one in which exclusive use of the vehicle for the hauling of exempt commodities was authorized, with no nonexempt commodities to be transported in the vehicle at any time. The Commission recommended liberalization of this, and the Congress passed an amendment in 1938 which the Commission interpreted to mean that a vehicle used in carrying exempt commodities could be leased to another person to carry nonexempt commodities. At that time the Commission ruled that the exemption did not permit the use of the vehicle for the hauling of exempt and non-exempt commodities unless the hauling of nonexempt commodities in the vehicle was performed by a person other than the one who hauled exempt commodities in the vehicle by a lease arrangement.

Two court decisions broadened the interpretation of the Commission by ruling that a vehicle used in transporting exempt commodities could also be used by the same person to transport nonexempt commodities

as long as the exempt and nonexempt commodities were not carried in the vehicle at the same time (*U.S. v. Dunn*, 166 Fed. 2d 116, 1948; and *ICC v. Service Trucking Co., Inc.*, 186 Fed. 2d 400, 1951). As a result, the Commission since 1951 has permitted carriers that were certificated to haul authorized commodities in one direction to use these motor vehicles without authority on the return trip to carry exempt commodities; and conversely, to haul exempt commodities in one direction and nonexempt on the return.

After the passage of the Motor Carrier Act of 1935, the Commission found certain agricultural commodities to be exempt and, in the absence of Commission action, the Bureau of Motor Carriers ruled in administrative rulings that certain commodities were or were not exempt. At one time the Commission relied upon the "channel of commerce" principle as being a means of limiting the extent of the exemption with regard to fish. On this basis, a commodity was considered to be exempt only when shipped in the form customarily provided by the producer and was an exempt product only until it entered the ordinary channels of commerce. Thus shipments from the fisherman to a fish broker or wholesaler would be exempt, but shipments from the broker to wholesalers or retailers would not be exempt, since the product had entered the ordinary channels of commerce when it reached the broker. Regulated motor carriers urged the Commission to adopt the same channel of commerce theory to be applicable to agricultural commodities, but the Commission rejected the principle entirely since it lost a court appeal in which it supported this principle, as a result of which the Commission broadened its interpretation. (*ICC v. Love*, 172 Fed. 2d 224, 1948.)

Although the Commission has rejected this principle, there are over thirty states which limit exempt for-hire service to that which is performed by or for the producer from point of production to initial market, warehouse, processing plant, or shipping point. The statutes of these states are more restrictive than the federal interpretation.

In 1948 the Commission instituted a proceeding, *Determination of Exempted Agricultural Commodities* (52 MCC 511, 1951), in order to re-examine its decisions as to the status of farm products in view of its revised interpretation of the term "fish (including shell fish)." The Commission, in this case, stated that the legislative history was not entirely clear as to the intent of Congress in applying this exemption except that it was to aid the farmer. Not only did the Commission feel that Congress intended the exemption to extend to commodities produced by the farmer in the natural state but to a limited extent to those treated and processed.

Even since the *Determination* case there has been an expansion of

commodities held to be exempt. In two court cases in 1955 (*ICC v. Kroblin* and *ICC v. Frozen Food Express*) it was held that fresh dressed poultry and frozen dressed poultry were agricultural commodities within the exemption in Section 203 (b) (6) of the Act, and therefore exempt. However, both of these cases have been appealed to the Supreme Court.

The Presidential Advisory Committee pointed out that a continual expansion of the agricultural commodities exemption could destroy the fundamental purpose of the Interstate Commerce Act. It suggested that the Act be clarified to indicate what exemptions Congress now wishes to give without undue interference with the main purposes of the legislation. This is the only phase of transportation policy discussed by this report which does not contain a specific recommendation by the Committee. The Committee only "suggests" in this respect and does not "recommend."

It is questionable whether or not the broadening of the agricultural commodities exemption through the years has benefited the group for which it was originally intended; namely, the farmers. It is the processor, the middle man, and the distributor who receive the benefits of the transportation savings resulting from the broadening of the exemption rather than the producer.

Agricultural groups have often cited the seasonal nature of agricultural products and the need for rapid transportation as justification for continuance of the exemption from economic regulation of transportation of agricultural commodities by motor carrier. It is believed, however, that the grant of irregular routes over a broad geographical area would still permit flexibility of operations in the hauling of agricultural products. This would also make for more orderly growth of agricultural transporters and provide greater stability which should, in turn, improve the quality of service.

Transportation services of all kinds develop responsive to needs for such services. The flexibility of intercity motor transportation, the convenience, the speed, the variety of services offered, the tailoring of equipment to specific requirements, and, in many cases, the specialization of services have combined to fill the needs of a multitude of shippers while the competitive stimulus provided by motor transportation has resulted in general improvement in transportation services available to the public.

THE PARTNERSHIP POLICY IN REGIONAL POWER PLANNING

By WALTON SEYMOUR
Washington, D.C.

I. Introduction

Early in 1953, the executive branch of the United States government announced new policies concerning the federal role in water resources development. These new policies were stated, initially, in rather general terms, and deepened understanding of their significance had to await their implementation. One of these new executive policies has been called the "partnership policy."

The meaning of the partnership policy is a good deal clearer now than it was in 1953. This clarification has come from decisions and actions of various executive and regulatory agencies. It is a very different policy than that followed before 1953.

In regions like the Pacific Northwest, where hydroelectric power is the major source of energy and where the federal government had the major role in water resource development, the change is of particular significance. For this reason, the Pacific Northwest will serve, in this paper, to illustrate some of the effects of the partnership policy. There follows a brief discussion of the new policy and the role of the federal government thereunder. Then the paper considers the processes and objectives of planning regional power supply and some of the major regional power planning problems which are affected by the partnership policy, together with some of the issues they create.

In conclusion, there will be discussed the question of whether the new policy represents a satisfactory method of reducing federal responsibility and federal expenditure, or whether it costs more than it is worth in terms of the withdrawal of federal initiative and leadership, and its far-reaching effects on the efficiency, economy, and adequacy of power supply, flood control, irrigation, navigation, and other water uses.

II. The Partnership Policy

The partnership policy has not been written into law. So far, it is a policy of the executive, without Congressional action endorsing its broad effects (with the exception of a single piece of legislation, the deauthorization of Priest Rapids as a federal project, for a period of two years—Public Law 544, 83rd Congress, approved July 27, 1954). It has found frequent expression among members of the administra-

tion. The writer's understanding, gained from the examination of several of these expressions, is that the partnership policy is as follows:

The responsibility for developing the power resources of any region rests with the people of that region, not with the federal government. Therefore, local enterprise, either public or private, will have the first chance to develop the water-power resources of the region. When the time comes that these agencies are either unable or unwilling to do so, then the federal government should step in and develop the power for the benefit of the people of the region.

In some instances, flood control, navigation, recreation, fish and wildlife, and irrigation are involved. In such instances, the federal government should be a partner in the project.

Since the adoption of this policy, no new water-control project starts for the Pacific Northwest have been recommended by the executive. The Bonneville Power Administration (BPA) has sold a major transmission line, which might have formed a part of a future interregional tie line, to a privately-owned utility company and has abandoned its plans for another major transmission line, which would have given BPA a direct connection to southern Idaho and which is now being built by another company. A license has been granted by the Federal Power Commission (FPC) to the Idaho Power Company for the development of three power dams on the Snake River, the construction of which will foreclose the building of the high multiple-purpose dam at Hells Canyon which was part of the comprehensive plan for development of the water resources of the Columbia Basin recommended in 1949 by the Corps of Engineers and the Department of the Interior. A license has also been granted to Public Utility District No. 2 of Grant County, Washington, for the development of the Priest Rapids and Wanapum projects (with initial installed capacity of about 1,170,000 kilowatts and a cost of some 350 million dollars), replacing a federal project authorized for the Priest Rapids site, and included in the comprehensive plan. Other proposals for the development of projects affecting the comprehensive plan have been made. Some were introduced in the form of specific legislation in the 83rd Congress and the first session of the 84th Congress. None was enacted.

In order to initiate orderly development of the water resources of the Columbia Basin, the federal government, during the thirties, undertook the construction of Bonneville and Grand Coulee dams. Although these were Public Works Administration projects, to relieve unemployment, they were designed to fit into a master plan for comprehensive river basin development. BPA was created to integrate these projects with a high voltage transmission system and to market their power output so as to bring about the most widespread benefits to the region, and so as to repay the costs of the power, together with a share of the joint costs of the projects. As this river development program moved ahead, additional important projects in the plan, such

as Chief Joseph, McNary, and the Dalles, were added on the main Columbia, and Hungry Horse, Albeni Falls, and the Willamette River projects were added on the tributaries. The transmission system created to market power from the federal projects served also to integrate the nonfederal power plants, and formed the backbone system for the Northwest Power Pool, a voluntary regional organization of private and public power suppliers established for the purpose of co-ordinating power supply within the region.

Before 1953, BPA acted as the principal agent of the United States in connection with the regional power planning efforts in the Pacific Northwest, spearheading adoption of a schedule for new multiple-purpose projects to obtain the associated power production as needed to meet the region's future requirements. BPA's initiative was an important factor in the projection of future power requirements and in planning additions of generating and transmission facilities, etc., with consideration being given to the needs of all agencies, federal and nonfederal. After about 1947, there was wide agreement in the region, among both public and private agencies, that federal development of the remaining major elements of the comprehensive plan in the Columbia Basin was essential for the provision of adequate regional power supply, at the lowest possible cost. It was the region's view that it was the responsibility of the federal government to proceed with this program at an adequate pace.

While this view prevailed in the region, there was no agreement as to how best to carry out the tremendous job of harnessing the waters of the mighty Columbia. In addition to the thirty million kilowatts or so of potential economical hydroelectric power (about 40 per cent of the total remaining undeveloped in the United States) awaiting development, the Columbia is a dangerous river, requiring great storage reservoirs and other works to reduce flood threats in the spring, when the snow melts in the high mountains (as it did, suddenly, in 1948, with heavy loss of life at Vanport). Navigation works, which would provide for the extension of a navigable channel to Lewiston, Idaho, and Wenatchee, Washington, would yield large benefits. There are good prospects for the development of valuable agricultural production, family farms, and new communities through irrigation. Fishery resources, the famous Columbia salmon runs, are threatened by development and should be preserved. The comprehensive plan was designed to provide for the multiple-purpose development of all of these resources.

Considerable attention was given to President Truman's proposal for a Columbia Valley Administration, which would have extended to the Columbia Basin a regional agency approach to unified compre-

hensive resource development, based upon some of the lessons learned from the years of experience with the Tennessee Valley Authority. This proposal failed to receive Congressional approval.

Proposals were presented from within the Pacific Northwest for a regional power corporation, with broad developmental authority, but these plans, too, failed to command sufficient support to assure their implementation.

III. Power Planning in the Pacific Northwest

The Pacific Northwest does not have any known sources of indigenous fuel of significant magnitude for electric power production and must depend upon imports from other regions for coal, oil, and gas. For this reason, the hydroelectric resources of the region are looked to for the major part of present and future power supply, as a matter of regional economy. Most of this hydroelectric power must be developed in the Columbia Basin. This means that, for a long time to come, Columbia power will be the basic energy resource in all power planning for the region. The timely, efficient, and economical development of Columbia power must be a prime objective of the planning process. Since power is only one of the important resources promised by truly comprehensive multiple-purpose development of the Columbia, another prime objective of regional power planning should be to develop Columbia power so as to enhance and not to damage or destroy the integrity of such a multiple-purpose development of all of the Columbia's water resources.

As in other regions of the nation, other power planning objectives include the progressive development of physical facilities and contractual arrangements which will assure the integration of sources of power supply and interconnecting transmission facilities, with accompanying benefits of increased efficiency and economy. The ultimate aim should be the provision of ample supplies of power at the lowest cost of which the region is capable.

If these objectives are accomplished in the Pacific Northwest, new economical sources of hydroelectric power will be developed as needed within the region, the comprehensive multiple-purpose development of the resources of the Columbia Basin will be assured, and an integrated and co-ordinated transmission network will be provided and operated with maximum efficiency and resulting economy of power supply.

Under the new federal policy and with the reorientation which it entailed for BPA, the federal government has withdrawn from the position of active leadership and initiative in striving toward these objectives of regional power planning which it occupied until 1953. Other federal agencies, the Corps of Engineers and the Bureau of

Reclamation, which are the project construction agencies, have been relegated to the role of developing only those projects which local public or private agencies are unable or unwilling to develop. This "residual" role is not one of action and leadership. The role of FPC, under the Federal Power Act, includes the review of nonfederal projects to determine if they are consistent with comprehensive water resource development. The Hells Canyon decision shows that FPC is willing to accept single-purpose development by a nonfederal agency which forecloses a multiple-purpose development planned for federal construction, on grounds which prominently included the contention that the nonfederal agency was ready to build now, and there was no present assurance that the federal project would actually be built. Even with a different point of view, FPC, as a regulatory body, would find it difficult to discharge a dynamic role in assuring comprehensive development.

The Northwest Power Pool provides the means for integrating the day-to-day operations of the private and public systems of the region so that maximum use can be made of the lowest cost sources of electrical energy and so that maximum amounts of electrical power and energy can be made available from existing sources as needed to meet the region's requirements. But the authority necessary for undertaking the construction of new power production and transmission facilities rests with the individual member systems, not with the Pool.

It is clear that the planning process cannot be carried out successfully in its entire complex job in the Pacific Northwest through a voluntary, informal agency like the Northwest Power Pool, which is not responsible for, nor in a position to conduct, a dynamic program of its own or to exercise leadership or initiative. The partnership policy has greatly diminished the role of federal agencies in these respects, and no substitute for their leadership, on a region-wide basis, has been found.

Take the matter of projecting future regional power requirements. Such a projection should be something more than simply a summation of the forecasts of the individual power systems. A realistic regional projection will take into consideration regional needs and opportunities which individual electric utilities often overlook. If estimates of the region's potential use of electric power and energy are too conservative, the amount of new power supply to be provided may be wholly inadequate. The shortage of electric power supply which then results may be revealed to everyone by brown-outs and curtailment. But, even if these dramatic evidences are not apparent, the effects of such a regional shortage may be severe. Factories will not be built to consume non-existent power and energy. Regional opportunities for enterprise and

resource development will be missed. The program for development of regional power supply should, therefore, be under constant scrutiny, on a regional basis, to be sure that the needs which it was designed to meet are realistic and present true measures of the region's capacity to consume electric power and energy in the future.

These functions—of taking the region-wide view of future power consumption capacity and exercising initiative in trying to insure that demand would be met—were among those performed by BPA until 1953, and, as a result of the sharp reduction of the size and functions of the BPA organization, are not now being performed as fully by any agency. Such a region-wide view seems clearly to be necessary in the Pacific Northwest, if the region's power supply is to be really adequate to meet its needs. Such a view is essential if consideration is to be adequate for other regional resource development opportunities which depend heavily upon adequate low-cost power supply, such as the phosphate deposits.

IV. *Some Other Specific Power Planning Problems and the Partnership Policy*

Four problems have been selected for further discussion, in order to provide specific illustrations of the type of "costs" which may be incurred due to the adoption of the partnership policy and which may serve to offset the reduction in federal responsibility and expense which the new policy was expected to accomplish.

1. *The problem of securing unified hydraulic and electrical operation of the water-control projects in the Columbia Basin and the interconnecting transmission facilities.* One of the immediate effects of the announcement of the partnership policy in the Pacific Northwest was to encourage the formation of subregional groupings of utilities, such as the Puget Sound Utilities Council, including the cities of Seattle and Tacoma, the Puget Sound Power & Light Company, the Snohomish County Public Utility District No. 1, and the Chelan County Public Utility District No. 1; and the Pacific Northwest Power Company, formed by four privately-owned utility companies, Washington Water Power, Pacific Power & Light, Portland General Electric, and Montana Power. These groups have expressed interest in, and secured preliminary FPC permits for, several Columbia Basin projects. Other agencies such as Eugene, Oregon, with the Cougar project, and Grant County PUD, with Priest Rapids, have proceeded individually to develop their proposals.

If the federal government were to continue to develop the water-control projects in the Columbia Basin with federal funds and to interconnect them through the federally-owned BPA transmission sys-

tem, all water-control and primary transmission operation would be under federal control. Problems would exist in reconciling actual system operations and the somewhat conflicting objectives of the Corps of Engineers, Bureau of Reclamation, and BPA, but this reconciliation would be an undivided federal responsibility. For example, a federal watermaster could be empowered with authority to control the storage and release of water, or comprehensive federal legislation providing for regional resource development administration might be adopted.

The establishment of major projects in the Columbia Basin under nonfederal control inevitably complicates the securing of hydraulic integration. The same is true of the nonfederal control of major elements of the interconnecting transmission system. Federal control would not, of course, preclude an advisory role for regional agencies, and it could be exercised on a regional basis.

Assuming that the partnership policy succeeds in its objective of encouraging nonfederal development of major projects, solutions will have to be found to these complications, so that the benefits which can be secured, in the public interest, from hydraulic and electrical integration of the water-control projects will not be lost. There is risk, too, of duplication of investment and facilities if maximum use is not made of the existing system of BPA. If power costs rise, due to lack of integration and co-ordination, the economy of the Pacific Northwest will suffer.

2. *The problem of determining and assessing charges on account of downstream benefits.* When a storage project is built on a river, its purpose is usually twofold. It develops the head, or fall, at the site, and it permits the planned storage and release of water as needed to increase natural flow in the downstream stretches of the river. This regulating function creates what are known as downstream benefits, in the form of increased amounts of marketable electrical power and energy available at downstream projects resulting from the more regular streamflow.

The Federal Power Act (Section 10f) provides that, whenever a licensed project is benefited by an upstream project, a payment is to be made in reimbursement of such a share of the annual charges for interest, maintenance, and depreciation as FPC may deem equitable.

If an upstream project and a downstream project are in common ownership, there is no problem of disposing of the downstream benefits. However, with separate owners, the problems may be difficult. If the upstream dam is partially justified by the benefits it can provide downstream and if the cost of providing these benefits is low, perhaps FPC's evaluation of an equitable share of the charges (costs) might be much

less than the value of the benefits. If the upstream project belongs to the United States and the downstream project is nonfederal, who should receive the net benefits of storage regulation? Should the determination be made and the expenditure of the receipts be supervised, as the law now provides, by FPC, an agency without responsibility for the financial results of the federal program in the region?

With projects on the river owned by several interests, which will be assumed to come first in calculating and assessing charges for downstream benefits? FPC has not yet established its position with respect to these questions, or with respect to its general formula for assessing charges. This introduces significant uncertainty as to the costs to be encountered for projects which are subject either to credits or charges, if they are under separate ownership.

For a river system like the Columbia, on which storage regulation is of substantial significance in determining power costs and the magnitudes of prime power availability, a policy which tends to multiply the number of conflicting interests in ownership of multiple-purpose or hydroelectric projects might mean indefinite postponement of valuable projects until a clear and workable basis is established to determine their full share for receiving or paying charges on account of downstream benefits.

3. *The problem of maximizing regional and national benefits from Columbia River system development and minimizing costs.* The job of developing the resources of such a river as the Columbia is not just a power job, not by any means. The comprehensive plan for multiple-purpose development of the water resources of the Columbia Basin involves a system of main stream and tributary dams storing water for hydroelectric power, navigation, irrigation, and flood control; the rehabilitation and extension of irrigation systems; the treatment of the tributary lands so as to minimize erosion, sediment flow, and runoff; the protection of the Columbia River fisheries; the treatment of industrial and municipal wastes; and the development of water facilities for recreation.

The partnership policy, resulting in the initiation of nonfederal power developments in the Columbia Basin, has already begun to affect the comprehensive plan. The FPC license for the Idaho Power Company, in effect, authorizes the elimination of almost 3,000,000 acre-feet of Hells Canyon-controlled storage, and reduces substantially the firm power contribution from this stretch of the river. The sponsors of the John Day project for private development want to build a low dam which would omit planned storage at that site. The same is true at Priest Rapids. Perhaps the Corps of Engineers will concur in such changes. A process of bargaining has been introduced which will be

bound to compromise the amount of total benefits to be derived from comprehensive Columbia River development.

A large section of the Columbia Basin lies in Canada. So long as the United States government has responsibility for development of the projects on its side of the border, a chance exists for international coordination, with large mutual benefits. Water can be stored in Canada to regulate flows in the United States, and thereby benefit downstream projects. The chances of negotiating the necessary arrangements with Canada may be significantly lessened if the downstream projects are under diverse nonfederal ownership.

Finally, the annual costs of projects built by nonfederal agencies on the Columbia are apt to be significantly higher than the annual costs of projects built by the federal government, due in large part to the higher costs of money encountered by the nonfederal groups.

4. *The problem of spreading the benefits of low-cost power throughout the region on a uniform wholesale rate basis.* BPA charges the same wholesale rate for transmitted firm power delivered to each of its customers, regardless of the customer's location and distance from the source of supply. This blanket wholesale rate policy means that all customers share in the economies of the low-cost projects, like Bonneville and Grand Coulee, and all share in the higher costs of less economical projects. In effect, its entire service area and its entire firm power supply are unified as far as BPA's basic wholesale rate is concerned. This removes one of the difficult obstacles to the development and integrated operation of new projects, since their cost impact is spread over the entire market.

The partnership policy would nullify the blanket rate policy for the projects built by nonfederal agencies, since the higher costs of these projects, unless their entire output were to be absorbed by BPA, would not be averaged in.

Since the projects to be developed by nonfederal agencies would tend to be the cheaper of those remaining for development (because of the "residual" nature of federal projects), any federal developments, being more costly, would tend to influence the future level of BPA's rates in the direction of greater future increases than would be required if the lower cost projects were federal.

V. Conclusion

The objectives of the partnership policy, implicit in its terms, include the reduction of the area of federal responsibility for water resources development and the reduction of the demands upon the Treasury for the power portion of the investment required for water-control projects and related transmission facilities. That these objec-

tives have some chance of achievement is evident in the Pacific Northwest. However, these achievements are not to be accomplished without cost.

The federal government has relinquished its position of leadership in developing the resources of the Columbia. Full development, as projected under the 1949 comprehensive plan, has already been compromised in the case of Hells Canyon, with reduced storage capabilities at one of the finest storage reservoir sites in the United States share of the Columbia Basin. It may reasonably be expected that active bargaining will continue in efforts to whittle down project costs for nonfederal owners by reducing nonpower facilities, as shown by recent history at Priest Rapids and John Day. Integration of hydraulic and electrical operations in the Basin will be rendered more, instead of less, difficult of achievement.

The blanket extension of low BPA wholesale rates to include the new power to be developed at nonfederal projects could only be accomplished by purchase of all, or most, of the output of such projects by BPA, which would mean the underwriting of nonfederal costs by the Treasury, a dubious economy as compared with direct federal investment, which BPA has demonstrated can earn an adequate return.

The calculation and assessment of charges for downstream benefits will be an essential element in the economics of some projects. No formulae have yet been firmed up for such determinations, which would be unnecessary if the downstream projects were federal instead of nonfederal.

The full development of Columbia River resources, on a comprehensive multiple-purpose basis and at lowest cost, may well be rendered impossible if nonfederal development of power facilities proceeds to the stage of steel and concrete without more dynamic federal action than is probable under the new policy, on the part of FPC, the Corps of Engineers, the Bureau of Reclamation, BPA, or any other agency.

Improved effectiveness and responsiveness of federal action could be secured through the adoption of legislative policies and the support of action which would encourage a unified effort in the development of Columbia River resources, matching the natural unity of the river itself. The progress made in this direction before 1953 was not continued thereafter. The partnership policy seems clearly to move away from the concept of unity. The problem remains as a challenge to the Pacific Northwest and the nation.

There is real question whether abnegation of federal responsibility for development of Columbia River power is in the public interest. The Pacific Northwest's economic future depends heavily upon the availability of an abundant supply of electric power at low cost. The com-

prehensive multiple-purpose development of the Columbia's water resources promises such a supply. Such a task cannot be accomplished without effective leadership and initiative, exercised under policies which are geared to the needs of region and nation.

The relationships between the partnership policy and regional power planning have been viewed in this paper in terms of the Pacific Northwest. A specific region was needed to point up definite conclusions. The Pacific Northwest was chosen for this purpose, primarily for two reasons: It is the region most strongly affected by the consequences of the new policy, since its present and future power supply is largely based on water power. And it is quite far advanced in the regionalism of its approach to power planning.

FEDERAL REGULATION OF NATURAL GAS PRODUCERS AND GATHERERS

By MARTIN L. LINDAHL
Dartmouth College

Federal regulation of independent gas producers and gatherers came into being with the decision of the Supreme Court in *Phillips Petroleum Company v. State of Wisconsin* on June 7, 1954 (347 U. S. 672, 1954). Involved in this proceeding was the Phillips Petroleum Company, a large integrated concern in the petroleum industry that owns or controls by contract large reserves of crude oil and natural gas located chiefly in the producing areas of the Southwest. While less than 5 per cent of its gross operating revenue was contributed by its natural gas business, the concern is the giant in the field with sales of nearly 500 billion cubic feet of natural gas in 1950, about 65 per cent of it to interstate pipeline companies. Phillips gathers the gas which it produces or buys from others by means of its several networks of gathering lines, removes impurities and recovers extractable products at processing plants, and then sells and delivers the larger part to five interstate transmission companies who transport and sell the gas to consumers and local distributing companies in fourteen states. The company does not undertake to transmit gas from the producing fields to consuming markets nor is it affiliated with an interstate pipeline company.

The Federal Power Commission made an exhaustive investigation of Phillips' operations and determined that it was not a "natural gas company" within the meaning of the Natural Gas Act of 1938 (*Phillips Petroleum Co.*, 10 F.P.C. 246, 1951). To qualify as a natural gas company, a firm must either be "engaged in the transportation of natural gas in interstate commerce" or in the "sale in interstate commerce of such gas for resale." The provisions of the Act with respect to certificates, rates, and other matters are made applicable to such "transportation" and "sale" by Section 1 (b), but are expressly stated not to apply to the "local distribution" or to the "production or gathering of natural gas." Phillips correctly conceded and the Commission found that the sales and the movement of natural gas here involved were in interstate commerce; so clearly the firm was subject to regulation as a natural gas company unless saved by the exemption of production and gathering. Since the phrase "production and gathering" is not defined in the statute, the Commission had to decide whether it meant simply the physical facilities and activities involved in this area

of natural gas operations or whether it embraced the whole complex of activities and decisions relating to output and sales involved in operating a production and gathering business. After a careful analysis of the record, the legislative history of the act, its own decisions during thirteen years of administration, and relevant court decisions, the Commission concluded that it had no jurisdiction over the "business" of production and gathering, including the sale of the processed gas which was the objective and end product of production and gathering activities. Phillips' interstate transportation and sales were found to be an incident of or a part of the gathering business; hence exempt from regulation.

But the Supreme Court, in a five to three division, overturned the Commission's decision exempting Phillips. Congress did not intend solely to regulate the interstate pipeline companies, reasoned the Court, for it would then have granted jurisdiction to the Commission not by saying natural gas companies engaged in transportation *or* sale but transportation *and* sale for resale in interstate commerce. Congress sought to fill the gap in regulation created by its decisions in the *Attleboro* and *Kansas Gas* cases to the effect that regulation of wholesale rates of electricity or natural gas moving in interstate commerce is beyond the constitutional powers of the states (*Public Service Commission v. Attleboro Steam & Electric Co.*, 273 U. S. 83, 1927; *Missouri v. Kansas Gas Co.*, 265 U. S. 298, 1924). And this hiatus was broadly interpreted to include wholesales at both ends of an interstate transmission system. The Commission was declared to have "jurisdiction over the rates of all wholesales of natural gas in interstate commerce, whether by a pipeline company or not and whether occurring before, during or after transmission by an interstate pipeline company." The broad sweep of this language not only emasculated the Commission's view that sales were an integral factor in operating a gathering business but nullified in large measure the exemption of production and gathering.

Possible conflict with state conservation measures that had been declared constitutional in earlier decisions (*Cities Service Gas Co. v. Peerless Oil & Gas Co.*, 340 U. S. 179, 1950; *Phillips Petroleum Co. v. Oklahoma*, 340 U. S. 190, 1950), including the fixing of minimum prices on interstate sales by producers, was held to impose no bar to the exercise of the Commission's authority.¹ And the Court could find little to distinguish the regulation of the prices at which gas was

¹ See *Natural Gas Pipeline Co. v. Panoma Corporation*, 349 U.S. 44 (1955), in which was held that Oklahoma could not fix the minimum price to be paid for natural gas, after its production and gathering has been completed, by the company which transports the gas in interstate commerce for resale. The Phillips case determined that such a sale is within the exclusive jurisdiction of the Federal Power Commission.

bought from companies affiliated with the pipelines and those of independent producers. Prices of each would have a direct bearing on the rates charged ultimate consumers and the primary purpose of the law was to protect consumers against exploitation by the natural gas companies.

The Federal Power Commission was thrust into an area of control that it had assiduously avoided during the sixteen years of its experience in natural gas regulation. Added to the 157 natural gas concerns reporting to it at the end of 1953, it was faced with the formidable task of regulating approximately 4,545 natural gas producers who sold to the interstate pipelines in 1953, only 659 of whom sold more than 100,000,000 cubic feet annually. (Staff Report of the Federal Power Commission, Senate Hearings on Amendments to the Natural Gas Act, 84th Congress, 1st session, 1955, pages 1242-1243.) But the Commission proceeded promptly to prescribe regulations for independent producers covering the filing of rate schedules and applications for certificates to transport or sell natural gas (Order Nos. 174, 174-A, and 174-B, issued July 16, 1954, August 6, 1954, and December 17, 1954, respectively). Independent producers were broadly defined to include any person engaged in the production or gathering of natural gas and who transports or sells such gas in interstate commerce for resale. It was urged upon the Commission that it define its jurisdiction over independent producers and gatherers more strictly and that it confine its authority to the sale of natural gas at the tail gate of the processing plant or the point where it enters the interstate pipeline. This delineation of the Commission's authority was based on an interpretation of the Phillips decision which emphasized the precise facts presented to the Court. But the Commission seemed disposed to place emphasis on the broad language of the dictum of the Court and at least tentatively to assume that its authority extended to all sales for resale, even at the wellhead in the field, if the product ultimately entered interstate commerce.

Some concessions were made to lessen the burden of regulation on producers and the Commission. Independent producers were released from maintaining accounts according to the uniform system and from submitting reports. Since the law provides for no exemptions, small producers could not be relieved from its requirements. But simplified rate and certificate filings were provided for them, and operators of unitization projects or processing plants are permitted to make filings for the producers involved with regard to all sales.

Under the rules, rate schedules in effect on June 7, 1954, the date of the Phillips decision, were required to be filed and adhered to. Any change in rates requires a new filing and is subject to suspension by the

Commission. Most noteworthy in this connection is that future or periodic changes in rates or service provided for in existing long-term contracts for the sale of gas are to constitute changes in a rate schedule. This brings the operation of the so-called "escalator" clauses in existing contracts definitely within the scope of the regular procedure of possible suspension and subsequent investigation as regards the reasonableness of the new rates.

Certificates are required both for operations presently conducted and for the rendering of any new service. And the rules purport to regulate strictly the abandonment of service. No independent producer may abandon all or any part of its facilities subject to the Commission's jurisdiction or the service rendered by these facilities without approval based on a finding that the supply of gas is depleted or that public convenience and necessity permit such abandonment. Nothing is to be done, however, which will interfere with compliance by producers with valid state conservation orders.

While the Commission has promulgated rules and had received 5,673 certificate applications and 10,042 rate filings as of February 28, 1955, it has barely scratched the surface in the solving of the numerous and intricate legal, economic, and administrative problems encountered in controlling the independent producers. The broad sweep of jurisdiction adopted in its rules was confirmed in proceedings involving the status of Deep South, Humble, and Shell Oil Companies (Opinion No. 284, Deep South Oil Co. of Texas, Humble Oil & Refining Co., and Shell Oil Co., issued September 9, 1955). Sales largely of casinghead gas to gatherers and gasoline plants which later sold the processed gas to pipeline companies for transportation to market were held to be jurisdictional; hence each was declared to be a natural gas company. On the key matter of rates, however, the Commission has rendered no decisions stating the economic principles to be followed in determining just and reasonable prices at which gas should be sold by producers. Rate increases numbering 2,433 and amounting to nearly \$30,000,000 annually had been filed by independent producers up to May 1, 1955 (Senate Hearings, *op. cit.*, page 1256). The bulk of these, some of which were occasioned by tax increases, were allowed to go into effect without suspension. Increases in 110 cases, amounting to about \$11,500,000, were suspended for investigation and determination of reasonableness.

Some indication of the principles and methods which the Commission may apply in fixing just and reasonable rates to be charged by producers may be gained from its decision in the Panhandle Eastern rate case of 1954 (Opinion No. 269, Panhandle Eastern Pipe Line Co., issued April 15, 1954). Here for the first time the Commission discarded the traditional public utility rate-base approach in pricing the

gas produced by an interstate pipeline itself, or by an affiliated firm, and accorded such gas its value as a commodity. In so doing it treated gas produced by the pipeline in a manner comparable to its practice of allowing the price paid for gas purchased from independent producers to be included among the operating expenses of the pipeline company. The Commission applied to Panhandle's own production the weighted average price of gas in the fields where the gas was produced of 8.4398 cents per Mcf, which was about 1.3 cents higher than the price determined on a cost basis. Evidence relating to the commodity value of the gas was that introduced by the Company itself and was not tested by independent investigation of field prices, but the prices actually allowed were substantially below those being paid under the more recent gas purchase contracts of Panhandle and others.

The rate-base method tended to discriminate against pipeline-produced gas in a rising market, and it had led to such incongruous results as the recognition of three different prices to owners, unregulated co-owners, and royalty owners on gas from the same well. But the most urgent consequence was its tendency to discourage pipeline ownership and production of gas. The role of the pipelines in providing gas for interstate use has fallen off greatly since the inception of rate control. Eight major interstate pipeline companies produced about 47 per cent of the gas which they transported and sold in 1940, whereas these systems produced less than 30 per cent of their requirements in 1951. None of the seven large systems which have been created to serve large consuming markets since the Natural Gas Act became effective produces any substantial amount of gas. Taken together these fifteen large major transmission systems produced only 18½ per cent of their requirements in 1952.² *

The Commission deplored this situation because it felt that the best interests of pipelines, distributing companies, and consumers would be served by encouraging gas production by the pipeline companies themselves. Among the reasons for this conclusion is that such production would strengthen the bargaining position of the pipelines in their negotiations with independent producers for the purchase of their large and growing requirements. It would also enable them to buy their requirements at more uniform volumes and better load factors and therefore at lower prices, since their own production could be used to meet the swings of throughput occasioned by fluctuations in consumer demand. Finally, actual control of supplies would insure that the future

² House Report No. 992 to accompany H.R. 6645 to Amend the Natural Gas Act, 84th Cong., 1st sess. (1955), p. 10. See, also, address by Nelson Lee Smith before the American Bar Association, September 16, 1952, entitled "Question Marks About Natural Gas." Former Commissioner Smith was a leading advocate of treating purchased and pipeline-produced gas in a like manner.

needs of consumers would be more adequately satisfied.

Pipeline companies cannot be compelled to engage in exploration or acquisition of additional reserves to safeguard the supplies of gas for their customers; indeed, the Commission has been unsuccessful in trying to prevent pipeline companies from disposing of gas reserves which they already own (*Federal Power Commission v. Panhandle Eastern Pipe Line Co.*, 337 U.S. 498, 1949). In such circumstances, the marked advantages of gas production by the pipelines themselves can be achieved only through a pricing policy which encourages and does not penalize development activities.

The Commission stated in the El Paso case (Opinion No. 270, El Paso Natural Gas Co., issued December 26, 1954), rendered late in 1954 after the Supreme Court's decision in the Phillips case, that it was not prepared "to permit the decision in the Panhandle case to stand as a precedent which would exclude, in the future, consideration of other methods or principles" to be used in determining the allowance in cost of service for gas produced by a pipeline or an independent producer. The matter was under study, noted the Commission, and views of all concerned had been solicited (Docket No. R-142, Notice of Proposed Rule Making, November 17, 1954). It did remark, however, that it was presently of the view that the same methods should apply to both pipeline and independent producers. And it did accept El Paso's contention that the field price for its own production of gas should be allowed, which was actually lower by a small amount than cost determined by the rate-base method.

It is extremely unlikely that the Commission will adopt the rate-base method unless Congress makes it mandatory. Senator Paul H. Douglas introduced a bill early in 1955 which would require that rates for natural gas companies be determined on the basis of actual legitimate cost of their property, but the Commission opposed its enactment on the ground that the prescription of a rigid formula would retard the development of satisfactory rate regulation. (S. 1248, 84th Congress, 1955. See Senate Hearings, *op. cit.*, pages 2, 1538, 1167-1168, for text of bill and comments.) The Commission has recognized the merits of the original cost standard in relation to the conventional utilities with large investments in replaceable property and operating most effectively under monopoly status but is also aware of its infirmities when applied to the dynamic enterprise of exploration, development, and production of natural gas. Entry into the field with its high degree of risk and uncertainty and dedication of discovered reserves to high-level consumer use should be encouraged. To employ a method which yields ever lowering values on gas owing to the application of a rate of return to a rate base that diminishes with the accrual of depreciation cannot achieve

these ends, especially when the market price of gas rises or remains stable. The original cost method has also the effect of penalizing the more astute, fortunate, and efficient producer, since his investment in leases and drilling will be less than that of the producer who expended more capital and struck less gas. Attempting to allocate the common costs of wells from which both oil and gas are produced presents a problem which can only be arbitrarily solved. Finally, the sheer magnitude of the task of gathering the data and ascertaining the prudent investment in the facilities of some 4,545 producers is enough to give pause to an administrative agency.

If the Commission adopts some such standard as a fair field price or reasonable market price as a test of reasonableness of the rates charged by gas producers, it will still be faced with some serious questions relating both to principle and administration. Of prime significance is the availability of a sufficiently large number of competitively determined field prices to serve as a standard to measure the fairness of the rates of a particular company. And there are other features of the gas industry that must be taken into account. Among these are the great variation in the quality of gas sold as well as conditions of delivery, concentration of control of reserves and output in some fields and areas, and the unique marketing arrangements and pricing practices in the industry. These will be considered.

Natural gas varies as between dry and oil-well gas and in relation to sulphur and liquid hydrocarbon content, pressure, and heat content. Gas is sold in small quantities requiring special gathering facilities and in large quantities readily available from the tail gates of gasoline plants. Sales prices reflect these differences as illustrated by the range of prices paid under contracts executed in 1952 and 1953 in the major producing areas (testimony of John W. Boatwright, Senate Hearings, *op. cit.*, pages 205-207). Prices ranged from 21 to 29 cents per Mcf in the Appalachian field, 7 to 18 in the Panhandle-Hugoton field, 4 to 13 in the East Texas-North Louisiana field, and from 3 to 16 in the Louisiana-Texas Gulf areas. Varying bargaining circumstances may be a partial explanation of this nonuniformity in prices in particular fields, but the main factor is the lack of homogeneity in the product. The Commission will have to make adjustments for these dissimilar conditions of supply.

The structure of the industry and the market have a definite bearing on the strength of competitive forces in the determination of prices. On the buying side of the market in the fields are the pipeline companies and local users, the former being the largest class of customers. In 1953, the interstate lines bought 4,714 of the 8,397 billion cubic feet of marketed production (Bureau of Mines; Federal Power Commission,

Senate Hearings, *op. cit.*, page 1243). Pipeline purchases are made by a small number of large buyers. In such circumstances, one would expect a repressive effect on prices, since sellers have few alternatives. This point was recognized by the Federal Trade Commission in its study of the industry which served as a basis for the 1938 legislation. It said that "many independent producers of natural gas are at the mercy of the present purchasing companies with pipe-line connections in their respective fields." (Senate Document 92, Part 84-A, 70th Congress, 1st session, 1936, Final Report of the Federal Trade Commission on Utility Corporations, page 608.) Their bargaining power is further enhanced by connections in many instances with several producing areas. Once constructed, of course, a pipeline cannot be readily moved to other sources of gas supply to avoid rising gas prices. But neither can gas wells be moved; so there is immobility on both sides.

It should be recognized, of course, that the pipelines function as intermediaries between producers and the distributing companies that serve the 25,492,000 customers using straight natural or mixed gas in 1954 (American Gas Association). The pipelines speak indirectly for these consumers in bargaining negotiations and seek now to assure supplies for customers located in every state except Vermont. And the demand for this premium fuel for residential use, including space heating, and for commercial and industrial purposes has expanded to the point where natural gas supplies about 25 per cent of the nation's energy requirements. A major factor accounting for the accelerated demand for gas has been the sharp rise in the prices of competitive fuels. The indexes of retail prices, with the base period 1935-39, stood in 1954 at 224.7 for anthracite coal, 212.7 for bituminous coal, 207.0 for No. 2 fuel oil, and 93.5 for electricity, as compared with 102.3 for natural gas (Bureau of Labor Statistics). With the prices of competing fuels, except for electricity, more than doubling in recent years, the relatively small increase in retail prices has given natural gas a marked advantage. Since 1950 the price to residential users has increased nearly 13 per cent⁸ and considerably more in some markets, and this has had the effect of reducing or eliminating the price advantage of natural gas for the important space-heating market in some areas, notably New York, Philadelphia, and Chicago. The qualitative advantage of natural gas as a fuel, however, is still a factor making for an expansion of sales even in these areas (Barro's, "Front Burners, Natural Gas Distributors Report Some Glowing Gains," November 14, 1955; pages 11-13).

The expanding consumer and industrial demand for the end product

⁸ Bureau of Mines data show an increase in average residential prices from 69 cents in 1950 to 86.5 cents per Mcf in 1953, or a 25.4 per cent increase.

has weakened the otherwise strong bargaining position of both the old and the new pipeline systems. And the impact of increased consumer demand on the derived demand for gas in the field is accentuated by the inelastic character of this demand. That the demand is fairly inelastic is suggested by the fact that the cost of gas in the field is only about 10 per cent of the final price to residential users, the cost of transmission and distribution usually ranging from 81 to 97 per cent of the price received by the distributor (House Report No. 992, *op. cit.*, pages 18-41). In their bargaining the pressures on the pipelines to buy at as low a price as possible, emanating from the resistance to higher prices encountered by distributing companies seeking to develop their markets and from regulatory authorities, are still present. In the prevailing circumstances, however, they cannot prevent the bidding up of field prices.

The more intense demand has had a marked effect on the average of field prices. During the period 1938 to 1945, average price fluctuated in a narrow range from 4.5 to 5.2 cents per Mcf for the whole United States and between 2.4 and 2.8 cents in Texas and Louisiana, where prices were said to be too low to prevent flaring and waste. Since 1945, average price has moved upward from 4.9 to 10 cents per Mcf in 1954, the sharpest increase having taken place since 1950 (Bureau of Mines). Recent purchase contracts call for prices of 17 cents per Mcf or higher in the Texas and Louisiana fields. Translated into city-gate and consumer prices, the 11 cents per Mcf paid by the pipelines serving markets outside of the southwestern states in 1953 was pyramided to 28 cents at the city-gates and an average of 91 cents to the residential user (testimony of John W. Boatwright, Senate Hearings, *op. cit.*, page 211).

On the supply side of the market are the few pipelines that produce gas, the approximately 4,545 independent producers that sell to the interstate pipelines, and an undisclosed number that sell exclusively in the local or intrastate market for industrial or residential use. In the absence of concentration of output in the hands of a few large firms, this number of producers would surely be sufficient to provide a satisfactory competitive market. But there is concentration as indicated by these data. First, of the 4,545 independent producers selling in 1953 to interstate pipelines, 1,510 were located in the seven southwestern producing states, with most of the others situated in the Appalachian area (Federal Power Commission, Senate Hearings, *op. cit.*, page 1257). These 1,510 producers sold nearly 86 per cent of the gas bought by the interstate lines in 1953. Second, of the sales in the southwestern states, 44 of the largest producers supplied 73 per cent, and 175 producers supplied 92.23 per cent, the remaining 7.77 per cent being provided by

1,335 small operators. Third, in 1953, the first 4 companies produced 17 per cent of the national output, 19 per cent of the output of the seven southwestern states, and 21 per cent of Texas production. The percentages of output for the 8 leading companies were 28, 30, and 33, respectively (testimony of John W. Boatwright, Senate Hearings, *op. cit.*, page 183). Fourth, in each of three leading Texas fields in 1952 (Texas supplied 54.3 per cent of interstate sales in 1953), 15 companies produced 80.8 per cent of the output in the Panhandle (Phillips led with 22 per cent), 64.0 per cent of the West Texas output, and 69.0 per cent of the output in the East Texas field. The 4 leading firms had percentages of 52.0, 36.7, and 30.1 in the respective fields. (Brief of Mid-Continent Oil and Gas Association and others in Federal Power Commission Docket No. R-137, 1954, Appendix A, page 35.) Finally, the degree of concentration seems to have declined in the southwestern states since 1947. In that year 600 firms sold to interstate lines 1,012 billion cubic feet, of which 43 firms supplied 76.44 per cent, and 70 firms 83.96 per cent; whereas in 1953, 1,510 firms supplied 4,044 billion cubic feet, with 44 firms supplying 72.99 per cent, and 175 companies providing 92.23 per cent (Federal Power Commission, Senate Hearings, *op. cit.*, page 1257). In the case of reserves as distinguished from production, there is also concentration. A recent estimate places 91 trillion cubic feet, or 43 per cent of total reserves, in the hands of 19 oil and pipeline companies (*ibid.*, page 1258).

These data indicate considerable concentration in the ownership of reserves and the production of gas. Except for the Texas Panhandle field and perhaps others, however, the degree of concentration appears to be on the low side. While by no means a perfect market, it would seem that workable competition can prevail in such a market structure in the absence of collusion. There seems to be no evidence of significant changes in the market structure in recent years which has weakened the competitive force. Noteworthy in this connection is the 300 per cent increase in gas purchases and the 150 per cent increase in the number of suppliers to pipelines in the southwestern area between 1947 and 1953.

A unique feature of gas marketing and one which impedes the operation of current market forces is the long-term contract for gas requirements. This arrangement is essential to the pipeline company to assure satisfactory financing and a certificate to construct from the Federal Power Commission. Seeking to avoid the earlier experience of committing gas supplies at a flat price for a period of twenty years in the face of growing demand and rising costs, various types of escalation clauses were inserted in contracts after World War II. One, a fixed type, provides for increases by specific amounts at definite dates in the

future. This reflects the higher costs of gas as the capacity of a field declines and is definite in amount; hence generally regarded as unobjectionable. Others are conditional. One of these provides for increases when a general price index rises. Another, the most-favored-nation clause, provides for increases if the pipeline pays higher prices to another producer in the field or other purchasers pay higher prices in the same or other fields. Another, the spiral clause, allows for increases if the pipeline succeeds in obtaining higher resale rates.

All of these conditional clauses have the basic infirmity of providing admirably for the keeping of contract prices in line with rising market prices but making no provision for reductions in the event of declining field prices. Also, basic market factors determine the price of an individual commodity like gas, and an index of general prices or a rise in resale prices based perhaps on higher transport costs are extraneous matters. Another basic difficulty inherent in the conditional clauses is that the purchaser loses continuing control over the prices which he will pay for gas in the future. This is not true of the simple favored-nation clause, since the pipeline can know the effect of its paying higher prices in new contracts upon its other contract prices. Where price adjustments depend on prices agreed to by outside parties, however, new price bargains are arrived at without any actual bargaining and with material effects on pipeline costs and the rates of ultimate consumers. If bargaining is to be relied upon for the determination of fair prices—and there seems little possibility of the quotation of spot prices as in the case of crude oil—price changes should be negotiated periodically under the new market conditions affecting both the pipeline, including conditions in its consuming market, and the producer. The Federal Power Commission has recognized the weaknesses of spiral and better market clauses in refusing to accept them in certification cases (Order No. 174-B in Docket Nos. R-137 and 138, 1954), and disallowed escalation increases in the prices paid to Phillips by the Michigan-Wisconsin Pipe Line Company in 1954 (Opinion No. 275, Michigan-Wisconsin Pipe Line Company, issued July 30, 1954).

Enough has been said with respect to market conditions to suggest the imperfections in the market and the problems to be encountered by a regulatory agency in substituting its judgment for the results of market forces. Since it has jurisdiction over only roughly one-half of the marketed production of natural gas, the Commission must of necessity pay close attention to prices and market developments outside its control. To the extent that the pipeline market leads the procession, however, it will have to rely on market data pertaining largely to this area.

And it would seem that the Commission must permit prices to move freely in response to changing demand and supply conditions. If price

is unduly suppressed in a period of rising demand, it cannot perform its function of rationing the available supply of this irreplaceable resource among the regional markets and its possible uses. To the extent that natural gas is used for inferior uses such as boiler fuel, it is not available for such preferred uses as residential service. Moreover, the incentive for exploration and development under higher cost conditions and the reduction of field waste must be retained. With annual net production having increased by 91 per cent since 1946 and gas reserves by only 32 per cent, this becomes quite apparent (testimony of Ford K. Edwards, Senate Hearings, *op. cit.*, pages 1738 ff.). The nation's reserves of 211.7 trillion cubic feet at the end of 1954 will last only 22.5 years at the 1954 rate of production, whereas the life index stood at 32.5 years as recently as 1946. Barely as much gas was discovered in 1954 as was used.

With field prices rising in recent years the owners of natural gas reserves have, of course, realized windfall profits. But this presents a problem in income distribution which is much more general in character and which involves questions of public policy as regards the discovery and use of all natural resources. Among other devices, taxation may be used to mop up undeserved and unexpected gains.

We turn now to a consideration of the Harris bill which was passed by the House of Representatives on July 28, 1955 (H. R. 6645, 84th Congress, 1st session, 1955). Less stringent in its terms is the Fulbright bill, a companion measure which is now before the Senate (S. 1853, 84th Congress, 1st session, 1955).

The Harris bill exempts independent producers from regulation and thus restores them to the status which they enjoyed prior to the decision of the Supreme Court in the Phillips case. But it does so only within limits, for under provisions designed to protect consumers against excessive rate increases the prices received for gas sold to pipelines are subject to review and determination by the Commission. This may be done either when a pipeline seeks an increase in rates based on an increase in the price paid for gas or upon application whenever a price is agreed to in a new or renegotiated contract. To be determined in these proceedings is whether or not the price paid is the "reasonable market price" of the gas at the point of delivery into the interstate pipeline facilities. Any amount paid in excess of the reasonable market price may not be allowed as an operating expense of the pipeline company for rate purposes. The same standard is to be applied to gas which pipelines themselves produce and in consideration of gas supply in certificate applications.

The authority of the Commission is extended to prices under both new and existing contracts. Price increases under escalation clauses in existing contracts, except for the step-up and tax increase types, may

be reviewed in cases where pipelines file higher rates based on such price rises. Thus the so-called "malignant escalation" clauses are not outlawed as such, but their operation is subjected to control. And contracts calling for prices higher than the reasonable market price may not be terminated because the pipeline is precluded from paying the excess amount.

In determining the reasonable market price, the Commission is required to consider, among other things, whether the price was competitively arrived at, the effect of the contract upon the assurance of supply, and the reasonableness of the contract provisions in relation to existing and future prices.

This standard embraces the factors which the Commission would consider in treating natural gas as a commodity as distinguished from the original cost rate-base approach. In this respect it adopts the principle chosen by the Commission in the Panhandle case and toward which a majority seems to be inclined in the fixing of fair prices for independent producers.

The proposed policy is clearly a compromise. It will not satisfy the advocates of the rate-base approach who would roll back prices to a lower and probably uneconomic level. Neither will it gratify the proponents of the policy of keeping hands off the price of gas entirely. But it should go far in satisfying those who see no merit in applying public utility controls to independent producers and yet recognize the uncertainty and absence of direct bargaining inherent in the operation of the automatic price adjustment clauses in long-term contracts. The majority of the Federal Power Commission has approved the basic ideas of the Harris bill (House Report No. 992, *op. cit.*, pages 44-48). Endorsement has also come from the Advisory Committee on Energy Supplies and Resources Policy which is concerned with assuring adequate supplies of natural gas in the "interests of national defense, an expanding domestic economy, and reasonable prices to consumers." (*Ibid.*, pages 5-6.)

Exemption of the independent producers will relieve the Commission of a heavy administrative burden. It will still be faced, however, with the difficult and delicate task of supervising contracting practices of the pipelines and judging the propriety of prices paid for gas. Consumers will enjoy about the same measure of protection that they can now be accorded by the Commission under any realistic pricing policy applied directly to independent producers. Finally, the Commission will be given a standard which will permit incentive pricing and thus encourage the discovery and development of gas reserves and their dedication to the public service market.

DISCUSSION

FRED V. STONE: The development of motor trucking in Canada is similar to that in the United States with some important exceptions.

The regulation of trucking in Canada is wholly under the jurisdiction of the provincial governments. The Board of Transport Commissioners for Canada which corresponds to the ICC in the U.S. has no jurisdiction whatever over trucking. A constitutional issue arose as to whether interprovincial and international trucking come under provincial or federal jurisdiction. The courts in 1954 determined in favor of the federal government, but thus far the federal government has declined to exercise this authority other than by making legislative provision permitting the provinces to control and regulate interprovincial and international highway transport.

The degree of regulation as to licensing and rates varies considerably from one province to another. In four of the ten provinces there is no legislative requirement that public convenience and necessity be taken into account in granting truck licenses. In two of the provinces, where public convenience and necessity is considered, the truck operator is required to obtain a license for each vehicle. In the other provinces, licensing is by route only with no control over number of vehicles.

As to rate control, three of the provinces have given the regulatory authority no power to regulate motor carrier freight rates. Other provinces have made legislative provision for rate regulation, but in only three of them has there been any attempt to implement and enforce rate regulation.

In contrast with the comparatively loose economic control and, in some provinces, practically nonexistent control over trucking, the railways in Canada are subject to very close control under the Railway Act of 1903 as amended and under the Transport Act of 1938 as amended, both of which are administered by the Board of Transport Commissioners. The railways can neither build new lines nor abandon existing ones without the Board's approval. The Board's powers are pervasive in respect of both service and price. All rates must be published and filed with the Board and scrupulously adhered to. All rates are subject to the Board's approval.

Water carriers, operating on the St. Lawrence River west of Quebec City and on the Great Lakes, are subject, under the Transport Act, to economic regulation for the movement of goods other than bulk traffic such as grain, oil, and ore. The exempted traffic is the greater portion of the total traffic. This regulation takes the form of licensing and rate control under the Board of Transport Commissioners.

We have in Canada one important method of rate making under regulation which you do not have in the U.S. I refer to the agreed charge, for which provision was made in the Transport Act passed in 1938 and amended in 1955. Under this provision, the railway is permitted to enter into an agreement with a shipper or group of shippers by which the shipper agrees to ship all or a stipulated proportion of his traffic by rail and the railways agree to a certain rate lower than the normal rate on this traffic. The agreed charge rate

is in effect a contract rate. Agreed charge agreements must be filed with the Board of Transport Commissioners and they are subject to the Board's approval. Any shipper who can comply with the terms of an agreement is entitled to become a party to it and the Board is clothed with authority to protect shippers against unjust discrimination. Water carriers under the Board are also permitted to enter into agreed charge agreements.

Statistics on truck operations and traffic in Canada are by no means as complete as in the United States, but it is clear that there has been a very great growth in the trucking business and it may fairly be assumed that truck traffic in recent years has grown more rapidly than rail traffic but that trucks in Canada are not yet handling as large a proportion of the total traffic as in the United States. Consequently, the impact of truck competition in Canada has probably not been quite as great as in the United States. The reasons for this would be:

1. The highway system in Canada is not developed to the same extent, but the difference in this respect will be narrowed upon completion of the Trans-Canada Highway which is now under construction and being financed jointly by the provinces and the federal government.

2. The longer and more severe winter and the road restrictions in the spring of the year impose greater handicaps on trucking in Canada. This difference is narrowing with the development of all-weather roads and year-round maintenance including snow removal.

3. The better opportunity of the railways in Canada to meet truck competition pricewise by the use of agreed charges and competitive rates.

Notwithstanding these differences, the effect of which cannot be measured with any precision, the impact of truck competition in Canada has been very great.

Besides providing an alternative form of overland transportation, the trucks are inexorably changing the distribution of transportation costs. They are having a profound effect upon the historic pattern of railway differential pricing under which high-valued commodities make a much greater contribution to over-all railway costs than do low-valued commodities. The ceiling on railway freight rates must now be truck costs less an amount to reflect the service differential between rail and truck service where such a differential exists. It is true that there is still a very large volume of railway traffic upon which the freight rates are still far below truck costs. The ceiling of freight rates for this traffic is the level of rates at which the traffic will move in volume.

At this point I should like to relate my remarks specifically to one paragraph in Professor Taff's paper wherein he discusses the recommendations of the Presidential Advisory Committee on Transport Policy and Organization. Professor Taff, quite properly I think, concentrated his remarks upon the recommendations that carriers be given greater freedom in rate making. If I may I should like to quote the paragraph to which I have reference in Professor Taff's paper:

Under this proposal, rates could be reduced on competitive traffic while the rates of the same carrier on noncompetitive traffic would not need to be reduced. The difficulty for motor carriers in rate reductions of this kind is that practically all motor carrier

traffic is competitive with rail traffic, whereas there are important segments of rail traffic which are noncompetitive. Thus regulated motor carriers of general commodities do not have blocks of noncompetitive traffic which they may fall back upon in a competitive struggle that would carry part of the burden in such a struggle.

It is quite common, even among railway and other transportation men, to speak of some railway traffic as being competitive and some as being noncompetitive. I maintain that this concept is misleading and tends to obscure the real picture. Actually there is no commodity handled by rail that a truck is physically incapable of handling. Nothing moves by rail that could not be moved by truck. The railways appear to have a monopoly on certain classes of traffic only because the rates they charge on that traffic are unattractive to truckers. What differentiates the competitive from the so-called "noncompetitive" traffic is not the physical characteristic of the goods to be moved but rather the railway rates at which the goods are moved. In other words, this artificial distinction between competitive and noncompetitive traffic, railway vis-à-vis the motor vehicle, stems from the historic pattern of railway freight rates under which the railways practice differential pricing—charging higher rates for high-valued commodities and lower rates for low-valued commodities.

Competition is breaking down this differential pricing system. The railway differential pricing system offered the trucker a sheltered area pricewise in which to operate and compete. Naturally the trucker does not wish to see that system disturbed.

It is not right to assume that the railways in lowering rates to meet truck competition are thereby increasing the burden on the so-called "noncompetitive" traffic. This would be true only if the competitive traffic were handled at a loss. One of the tests of minimum rates under regulation as proposed by the Presidential Advisory Committee is that the rates must be compensatory. Any traffic which yields revenue in excess of out-of-pocket costs is making a contribution to overhead or constant costs and is thus lessening rather than increasing the burden on other traffic.

It is true, of course, that truck competition is shifting some of the burden of transportation costs from high-valued to low-valued commodities because of the greater reliance that must be placed upon competitive costs and competitive service in the allocation of traffic between the different transportation agencies. The point is—and this is very important—that the more of the competitive traffic the railways can handle at compensatory rates the less burden of overhead the so-called "noncompetitive" traffic will have to carry.

This change in the pattern of freight rates, caused by the pervasiveness of competition, is the very core of the so-called "transportation problem." It calls for difficult and perhaps painful adjustments.

I realize that, before a convention of economists, it is platitudinous to say that public policy in both our countries should be directed toward that kind of regulation which will result in obtaining the required transport at the lowest over-all cost to the nation. It is probably also platitudinous to say that the problem is essentially one of harmonizing regulation and competition, but there appears to be a good deal of room for argument as to how much regulation is needed and as to what form that regulation should take.

As a transportation man, I appeal to you economists to give your best

thought to this vexing problem. Its complexities and importance in the national economy make it worthy of your attention and counsel.

MARTIN G. GLAESER: It is significant of the current trend of economics that the three papers to which we have just listened should be restricted to one single program though they deal with problems replete with controversy and fraught with tremendous consequences for our entire economy. I wonder what two of the founders of the American Economic Association—Richard T. Ely, of Wisconsin, and Henry C. Adams, of Michigan—would say were they alive today to find that economic issues significant from their day to the present were relegated to this comparative backwater of discussion.

Professor Taff's paper in bringing in the report of the Cabinet Commission headed by Secretary of Commerce Weeks raises the question as to what should be done about the transportation problem in general and about the future functioning of the venerable Interstate Commerce Commission in particular. Professor Lindahl's paper on federal regulation of natural gas producers and gatherers calls into question the limits of regulatory jurisdiction of the Federal Power Commission as of all commissions and, by necessary implication, of the efficacy of current procedures in limiting the economic power of natural monopolies.

Mr. Seymour's paper poses the question whether it is in the public interest that the role which the federal government has assumed in the past in developing our water, land, and power resources should be curbed in favor of a less federally centralized and more locally- and privately-oriented initiative. Legislative proposals have already been introduced into Congress or are in the making to give effect to these radical revisions in public policies.

In the brief time at my disposal I can comment on only a few aspects with respect to each of them. Professor Taff's paper concerns itself with only the motor carrier end of the present transportation crisis, although he recognizes it to be part of a larger whole. In considering the plight of the organized transport industries I am reminded of a cartoon of the twenties representing the four corners of a street intersection, one corner showing an automobile plant spewing out swarms of Henry Ford's "flivvers" with the gentleman in question pounding a cash register with each passing vehicle. Directly across the street is a gasoline filling station to which the flivver at once repairs to be "gassed up" with John D. Rockefeller punching the cash register. The caption of the cartoon was, "Who will win?" We would now be in a position to complete the cartoon by showing a derelict electric street car barn on the third corner and an abandoned railway passenger station on the fourth. But in order really to complete the picture we should show five corners with a mortuary and hospital doing a land office business on the fifth.

None of these effects is adumbrated by the Weeks' *Report*, although I am sure the Commission was aware of them. Instead, their argument takes its departure from the dubious premise that these technological changes have undermined the monopoly position of the railways which they held until 1920 and that competition is now the order of the day. At this very point I want to put in a disclaimer. If I have read my economic history right, it seems to

me there was in effect from 1887 on an antipooling policy, which was not relaxed until 1920 and then only conditionally; a long- and short-haul rate policy to control competition, at first emasculated and not made fully effective by amendments until 1910 and 1920; a policy to discourage railway consolidation accentuated by the Northern Securities case of 1903, which was never reversed but permitted some degree of integration by way of voluntary consolidations in 1920 and this only after strong and weak road competition had created a hopeless financial problem for most of our railroads. In the face of the homeopathic remedies prescribed by the witch doctors of 1920, so much decried by Senator Cummings, who advocated stronger remedies, the financial tangle remained unraveled despite rate-making rule, physical valuation, and recapture clause. Perhaps I have said enough to indicate that the status of monopoly was a chimera and that the diagnosis of the Weeks' Commission was faulty, to say the least. To be sure, I agree that after 1920 a weak and hesitant regulatory policy in the face of rapid technological change has further undermined the legal status of common carrier with respect to all our major transport agencies, as Professor Taff and the Commission point out. But the question may be raised whether the patient will respond to a course of treatment which comes out of the same bottle, labeled competition, subsidized or unsubsidized. At least the outcries from the direction of Washington seem to indicate that some of the patients are afraid of the medicine. My own conclusion is that we need a new diagnosis.

I come now to Mr. Lyndahl's paper which correctly, adequately, and on the whole fairly states the problem of interstate regulation of natural gas pipelines vis-à-vis the unregulated segment of the gas finding, gas production, and gas gathering business. Professor Lyndahl seems to approve of the policy in the Harris bill which has passed the House and is now in the Senate. The bill adopts the commodity approach instead of the rate-base approach and follows the lead of the FPC in the last Panhandle case (1954). Parenthetically, it should be noted that the Circuit Court of Appeals of the District of Columbia remanded the case to the Commission for further findings and with evident disapproval of some of the Commission's procedures.

Professor Lyndahl calls the policy of the Harris bill a compromise not satisfactory to either side. Inferentially at least he seems to approve the compromise because he says: "But it should go far in satisfying those who see no merit in applying public utility controls to independent producers and yet recognize the uncertainty and absence of direct bargaining inherent in the operation of the automatic price adjustment clauses in long term contracts." Perhaps natural gas consumers will get some comfort out of this should they read the paper. To me this appeal to "reasonable market price" has a familiar but unsatisfying sound. Perhaps the reason for my skepticism is that it is a case of what Justice Holmes used to call drawing a conclusion "though too inarticulate for any major premise." As a believer in the necessity for tough regulation in order to preserve the capitalistic system, I would vote against the Harris bill because I should like to see the Commission pursue the experiment of "cost of service" regulation a little further. This method I think also has some promise to do what Professor Lyndahl thinks the other

will do; namely, "will permit incentive pricing and thus encourage the discovery and development of gas reserves and their dedication to the public service market." It might even do this without creating so many oil and gas millionaires, though it might spoil a part of the market for that paragon of the motor age: the new Continental Motor.

This reviewer is in accord with Mr. Walton Seymour's criticisms of the partnership policy as it is now being applied in the Pacific Northwest. It may be that the Bonneville Power Administration will meet some of these criticisms, particularly those having to do with securing unified hydraulic and electrical operation of the water control projects in the river. Provided the national public interest is not unduly sacrificed, there is, of course, no reason why a measure of regional participation by public and private agencies should not be encouraged. This need not follow the pattern set by the Tennessee Valley Authority, but national interests should be preserved.

One might also have wished that the paper on the partnership policy had come to terms with the mounting criticism of the preference clause as discriminatory in its operation against the customers of private utilities. To be sure, the preference clause was founded upon the assumption that public regulation of private utilities was not operating satisfactorily; but as regulatory standards are improved, supplies of surplus power from federal agencies should not be withheld.

A most controversial issue, which the partnership policy does not cure, has to do with the freedom from federal or state taxation of the power facilities owned by alternative governmental units. Except as definite policy considerations may dictate freedom from the burden of federal taxation, as in the case of co-operatives providing rural electric service, it would seem that the electric energy sold to customers of publicly-owned utilities should be served to them wrapped in a fair share of the burden of federal or state taxes.

ECONOMICS IN THE CURRICULA OF SCHOOLS OF BUSINESS

OVER-ALL STATEMENT OF THE PROBLEM AND SITUATION

By NEIL H. JACOBY

University of California

My assignment is to discuss the role of economics in the curricula of university schools of business administration and to comment upon current practices and tendencies in American universities. I should make clear at the outset that my observations about current practices are random and without benefit of scientific sampling, elaborate questionnaires, or frequency distributions! There has not been time available to me to make a systematic survey of current practices. My observations can, at least, be considered free of conscious bias. An economist by training and experience, I have been dean of a graduate and undergraduate school of business administration for a number of years. Having a foot in both academic camps, figuratively speaking, I feel able to consider the function of economic studies in business schools with a certain amount of detachment.

Importance of Management Education

For good or evil, university education for business is one of the strongly expanding industries of the United States. *Fortune* is authority for the statement that in 1954 no fewer than 170 business schools enrolled more than 200,000 students. Adding students in liberal arts departments whose courses are basically in business administration, *Fortune* estimates that one out of every eight American college students is now majoring in "business." During the past forty years, students majoring in business have increased from 1.4 per cent of U.S. college graduates to 12-14 per cent.

Obviously, the quality of the education received by this rising fraction of students in American institutions of higher education is a matter of great importance to the future of our national economy. Moreover, American schools of business are now being called upon to advise and assist many foreign governments in establishing university programs of management education abroad. Because more and more economists will in the future be drawn into the faculties of business schools, economists have an especially keen professional interest in the role of economics in business school curricula.

So important a subject has not escaped the attention of the American Economic Association. In 1950, an AEA Subcommittee on the Study of Economics in Schools of Business, under the chairmanship of Professor Howard R. Bowen, reported on the then current place of economic studies in schools of business. We do well to recall its findings.

Findings of the 1950 Subcommittee

The Subcommittee surveyed forty-six schools of business. All of the respondent institutions required all business students to complete a basic course in principles of economics. Usually this course was offered in the sophomore year, carried six semester hours of credit, and served as a prerequisite to courses in the junior and senior years. Usually no distinction was made between business and nonbusiness students, the same course serving both groups. However, the content of the course differed considerably among respondent institutions. Thus price theory accounted for as little as 4 per cent of the course in one institution and in another for as much as 40 per cent. Similarly, the portion of the course devoted to national income analysis varied from 1 per cent to 25 per cent.

Beyond the general principles course, there was great variation in the number of courses required in "economics" by business schools. The range was from one to seventeen courses; the median requirement was three courses. Half of the business schools required money and banking, one-third required economic history, and one-sixth required labor economics. Three or more schools required business cycles and forecasting, economic geography, business organization, or corporation finance. In only a few institutions was there an integrated program of economic studies for the business school student beyond the sophomore year. Only one-third of the business schools had developed advanced courses in economics especially designed for their students. The Subcommittee concluded that there was little uniformity in business school requirements of economics courses and that the typical requirements were quite inadequate.

The Subcommittee recommended that the necessary economic content of a business school curriculum should include the following elements: a general survey of economics, economics of the business enterprise, money and banking, public finance, business fluctuations and analysis of economic condition, government and business, labor relations, and international economics. The Subcommittee did not necessarily call for one or more required courses in each of these subjects, merely that these subjects be treated adequately in the business school curriculum.

I commend this Subcommittee report to your attention. So far as I

know, the facts which it found regarding the role of economics in business school curricula remain substantially true today. Nor do I take issue with the substance of its recommendations regarding the necessary economic content of a business school curriculum leading to a bachelor's degree. In general, I subscribe to its views, so far as they go.

The Subcommittee did not, however, recognize the sharply different types of business curricula currently being offered in American colleges and universities and indicate the proper role of economic studies in each type of curriculum. Nor did it concern itself specifically with the role of economics in graduate programs of education for business. These are important subjects to which we may address ourselves fruitfully; thus extending the past studies of our Association in this field.

Different Levels of Education for Business

Anyone who tries to give a succinct definition of the proper role of economics in the curriculum of a business school immediately finds himself in difficulties. He must first delimit the boundaries of economics as an academic discipline. He must then define the objective of the school of business administration and indicate the kind of curriculum intended to achieve it. Only then is he able to point out the extent to which economic studies enter into the curriculum and how they may be best introduced to achieve the end in view.

The logic is clear enough. But there are no clear boundary lines of economics as a field of study. Nor is there universal agreement upon the mission of the university school of business. Within the United States today there is a bewildering variety of departments, colleges, and schools offering business curricula. They range from purely graduate schools, such as those at Harvard, Stanford, Columbia, or Carnegie Institute of Technology, to purely undergraduate four-year colleges, such as those at Boston College, Claremont, or Johns Hopkins. In between, there are universities having schools offering both four-year or two-year programs leading to a bachelor's degree plus graduate programs leading to the professional M.B.A. degree or a doctor's degree. Graduate business schools ordinarily regard the professional education of men and women for executive positions in economic enterprises as being their primary function. The best undergraduate schools pitch their offerings at students with more specialized interests in accounting, insurance, market research, investments analysis, etc. Some undergraduate colleges have vocational curricula to train window dressers, salesmen, bookkeepers, or secretaries. Obviously, the proper role of economics in the curriculum of the business school depends heavily upon what the curriculum seeks to accomplish. Herein, I shall assume we are considering only university schools of business with professional

objectives on an intellectual parity with such other professional divisions of the university as schools of medicine, engineering, or law.

I shall now put forth—rather bluntly—my own beliefs regarding the appropriate objectives of university schools of business administration and the types of curricula appropriate to those objectives. If I seem to speak dogmatically, you will understand that I do so in order to evoke frank and cogent discussion.

Management Is the Proper Focus of the Business School Curriculum

If I am not mistaken, there is emerging in the United States a general recognition that the primary function of a university school of business is to educate potential or practicing executives. Of course, the university business school also provides education in particular tools or techniques used by executives in management, such as accounting, market research, security analysis, or motion and time study. But these subjects are coming to be viewed as part of, and subsidiary to, the primary purpose of the school—which is education for general managerial and administrative responsibilities. Its main task is to prepare men and women, insofar as formal education can do this, for positions of leadership in business life. The business school must therefore focus its curriculum upon the principles of management and administration. These embrace a body of concepts and ideas about the organization, staffing, planning, controlling, and leadership of business enterprises in a competitive, free-market economy. The evolution of courses in what may appropriately be called the field of management theory and policy represents one of the most hopeful and significant developments in American schools of business during recent years.

In carrying out its mission, the university school of business should draw upon the theories, concepts, and methods of numerous academic disciplines. Because the business executive is an economizer of scarce resources, the study of economics must be an essential part of his intellectual equipment. The executive is an organizer of men, and he should draw upon political science for principles governing power relationships and organizational structure. The executive is a leader of people, and he needs to apply the principles of psychology and sociology in eliciting effort from people and managing personnel. The executive is a manipulator of machines, methods, and products in a world of rapid technological change, and he needs some background information in natural science and industrial engineering. The executive is constantly contracting for the acquisition or sale of capital funds, equipment, materials, and services, and he needs to know the basic elements of law. He is continuously required to interpret masses of figures regarding the physical output or financial results of business

operations, so that he needs to be a "shirt-sleeve" statistician. With the recent development of "operations analysis" and high-speed electronic computers as aids to executive decision, it will greatly help the executive to have a training in mathematics. Finally, the executive helps to guide a human enterprise through time, and he needs the perspective that the study of history provides.

It is worth recalling all of these elements of executive education because we can then see the role of economic studies in executive education in better perspective. It becomes apparent that, while economics is an important discipline in analyzing and solving business problems, it is only one such discipline. It would be a grave error to hold that economics is the "master" science of business management, or that management is simply a kind of applied or institutional economics.

Is Operations Analysis a Branch of Economics?

Of course, we run into the problem of defining economics at this point. Recently, econometricians have begun to concern themselves with many types of business problems being studied by business controllers, mathematicians, and industrial engineers. I refer to their interest in the field originally known as "operations research," and now more generally called "operations analysis," or "activities analysis," or "management science." An increasing number of economists who are well schooled in statistics and mathematics are supplementing their macroeconomic studies of interindustry relationships with microeconomic analyses of routing, scheduling, inventory control, and other internal problems of the firm faced by business executives. Important contributions to management theory and practice have already been made by operations analysis, and more are on the way. Economists cannot, of course, lay exclusive claim to this field of inquiry, because accountants, engineers, and physical scientists have been equally responsible for developing it. The point has been reached where there is an important body of organized knowledge in this field. Whether or not it is regarded as a branch of economics, no graduate school of business can afford to neglect courses in operations analysis and the use of electronic data-processing equipment.

Objectives of Undergraduate and Graduate Business Curricula

In order to define the role of economics in the business school curriculum, one need first have a clear conception of the stage of intellectual development and personal maturity at which the subject of management can be effectively taught. It is clear to me that the business school should admit students to a professional type of curriculum no

earlier than at the junior year. At least the first two years of college work should be devoted to education in the liberal arts, in order to build a necessary foundation of knowledge of mathematics, natural and social science, including the principles of economics, and the humanities. Upon admission to the business school at the beginning of his junior year, the student may then proceed to master certain intellectual tools of business, notably statistics, accounting, business law, the economics of the firm, and the analysis of general business fluctuations. He can then proceed to study major functional fields of management, including production, personnel, finance, and marketing. As an undergraduate, he will be able to master only the elements of general management theory and policy.

There is room for an upper division curriculum in business administration, based on a solid foundation of liberal arts. I am persuaded, however, that the best that can be done at the undergraduate level is to lay a foundation for the study of management theory and policy and to enable the student to master some business skills and techniques, such as accounting or production control, which will get him started on his first job.

True managerial education should be given at the graduate level. An appreciation of the principles of management requires some personal experience in leading people which is rarely found among undergraduates. Management also involves an integration of knowledge from many fields which requires a maturity of mind and personality. Therefore, I have no quarrel with those who maintain that the appropriate pattern of executive education is a two-year graduate program, to which those having bachelor's degrees in liberal arts or engineering or law may be admitted. In such a purely graduate program, it is possible to compress the necessary tool courses and studies of functional fields of business referred to previously into a year of work and to devote the second year mainly to the principles and problems of management and administration.

Economics in the Upper Division Curriculum

My own view of the economic studies appropriate to upper division students in the business school comes reasonably close to that of the AEA Subcommittee which reported in 1950. First, a basic course in money and credit is an essential foundation for work in the financial management of a business enterprise. This may be the usual money and banking course, although preferably it will deal somewhat more broadly with the financial organization of society and the processes of regulation of the money supply. Secondly, students should take a course in the economics of enterprise. Although pitched at the same intellectual

level, this will not be the usual intermediate economics theory course, because it will focus attention upon an analysis of the behavior of the individual firm. Thirdly, students should complete a course in business cycles and forecasting, in which the economics of general shifts in the level of production and employment are studied, methods of detecting changes in the business situation are presented, and the adjustments of the individual firm to changes in its environment are pointed out. Again, this will preferably be somewhat different than the more formal course on business cycles taken by students majoring in economics.

In addition to completing these economics courses, upper division students of business administration should be taught how to apply economic principles and ideas in their required courses in the major functional fields of management. For example, economic training is involved in courses in production management, in which such managerial problems as plant location, materials procurement, or production scheduling lend themselves to economic analysis. Such subjects in the field of personnel management as labor market analysis or determination of the firm's wage structure are susceptible to economic treatment. Marketing courses should have to apply economic principles in dealing with pricing, advertising, sales promotional budgets, or choice of distributional channels. Business finance courses should utilize economic concepts in dealing with such problems as choice of alternative capital investments, choice of alternative methods of securing external funds, or dividend policies. Economics should be considered not simply as preparation for business management courses. Economic principles and ideas, along with those from psychology, sociology, and other disciplines, should be worked into the warp and woof of many business courses.

Economics in the Graduate School Curriculum

Economics has an important role to play in the curriculum of the graduate school of business. At the graduate level, it is possible to engage effectively in those studies which require an ability to integrate a considerable body of institutional knowledge and which call for sophisticated judgment. The curriculum of the graduate school of business should therefore include, in addition to the economic content of upper division program just described, at least three courses in economics. First, there should be an advanced course in managerial economics, building upon the basis of the undergraduate course in economics of enterprise and dealing critically with problems of industrial structure, forms of competition, and pricing of products, and factors of production. Secondly, there is need for an advanced treatment of general economic fluctuations—their diagnosis and prediction, their impact upon the individual firm, and the adjustment of the firm to

them. Finally, the curriculum of the graduate business school should include a course which gives an integrated view of the bearing of governmental regulation upon business operations. I have in mind a graduate course of the kind ordinarily entitled "Government and Business" or "Social Control of Business." These advanced economic studies provide an essential basis for those courses in organization, planning, controlling, leadership, and policy formation which form the heart of any graduate business curriculum. They help mature students to deal confidently with business cases—complex fact situations in which a salient problem must be identified and a solution must be found.

*Organizational Relationships of Economics to
Business in the University*

So far, we have been considering the substance of economic studies in the curricula of business schools, undergraduate and graduate. We have not considered what internal organization of the university will enable both the department of economics and the business school most effectively to achieve their objectives. Here we become involved in a number of knotty problems that have been the subject of prolonged debate on many a campus. What shall be the administrative relationship of the department of economics to the business school? Which shall offer what courses? Who shall control curricula? Although the substance of a curriculum clearly transcends its jurisdictional location in importance, the effectiveness with which any curriculum is administered depends heavily upon organizational arrangements.

The starting point of any useful discussion of this matter must be a recognition that the business school and the department of economics have significantly different objectives. The business school is a professional arm of the university with the mission of educating business executives. The department of economics is an academic department whose objectives are to contribute to a liberal arts curriculum and to educate teachers and researchers in economics.

A well-conceived curriculum for the education of business executives embraces much more than the study of economics and involves mathematics, accounting, statistics, business law, and aspects of psychology, sociology, political science, and history. The student of business management must examine the institutional and market structure and processes of the economy in detail and must know thoroughly the internal anatomy and physiology of the firm. He must acquire, through the clinical study of business cases, an ability to make reasoned decisions upon a basis of complex but incomplete facts. All of his studies have a managerial emphasis and point of view.

The student specializing in economics, on the other hand, is more

concerned with the performance of the whole economy and with public policy than with managerial decisions in the individual firm. A good curriculum in economics will include a detailed study of economic theory, economic history, and of the development of economic thought. It will examine and appraise theoretical controversies and will study closely generalizations about the behavior of the economy as a whole.

The relationship between the business school and the economics department is analogous in many ways to the relation between the medical school and the department of biochemistry; or to the relation between the engineering school and the department of physics. Each of these professional schools necessarily utilizes in its curricula principles and theories drawn from those academic disciplines that are basic to its field of professional practice.

History Attests to the Advantages of Autonomy

As was pointed out by the AEA Subcommittee in 1950, experience shows that the strongest departments of economics and the strongest business schools have developed concurrently at institutions where each has a considerable measure of autonomy. Harvard, Chicago, and Columbia illustrate the point and other institutions readily come to mind. Where each unit is administratively free to pursue its own objectives, the probabilities are that each will come closer to achieving satisfactory results for its students. Where one is administratively subordinated to the other, it is hard for both to make maximum progress concurrently. Faculty members of departments of economics ordinarily—and properly—orient their thinking to the application of economic principles to problems of public policy. Faculty members of schools of business normally are preoccupied with decision making within the firm. Even in treating the same general economic ideas, there are important differences in emphasis, in illustration, and in application. This is why business economics is coming to be recognized as a separate field of specialization within the whole field of economics.

The implication is rather clear that the business school should be organized as a professional school of the university and the department of economics as a department within the social sciences or letters and sciences division of the university. The treatment of business as a subdivision of economics or of economics as a subdivision of business—an arrangement found on many American campuses—is a historical anachronism based upon a faulty perception of the different functions of each academic unit and hurtful to the fruitful development of both. Autonomy would be of even more advantage to economics than to business because a recent survey of the fifty-two universities having business schools that were members of the American Association of

Collegiate Schools of Business revealed that economics was located within the business school in thirty-two institutions.

In the second place, the best results are achieved when the department of economics and the business school are each free to appoint their own faculties, and to develop their own courses and curricula to meet the particular needs of their respective students. An adequate business school curriculum cannot be constructed—cafeteria fashion—by selecting courses offered by the economics and other departments, because such a curriculum will fail to teach the theory of management and to inculcate in the student the managerial point of view.

Does Autonomy Involve Inefficiency?

Of course, autonomy can be inefficient at a small institution, where the number of students is too small to warrant well-developed and separate faculties and programs of study. Small institutions, however, are well advised not to undertake to offer both formal training in economics and professional education for management. At universities of substantial size—and, as affairs are going, nearly all universities will soon be large—autonomous faculties and courses of study will involve no inefficiency.

The familiar objection that autonomy brings a duplication of courses is not valid. The same body of principles may be taught from such different points of view, using such different illustrations, and applied in such different ways as to make courses substantially different although their titles may be similar. Nor do autonomous faculties entail a wasteful use of faculty manpower so long as there are enough students to keep all classes filled to capacity. This is a requirement about which we shall not have much cause to worry in the years ahead!

The Need for Co-operation

Having stated the case rather baldly for autonomous faculties, courses, and curricula, I hasten to add several obvious qualifications. Clearly, potential executives need to understand the nature of a free-market economy, the ways in which it differs from other economic systems, and the public policies under which it will serve the public interest well. They should be encouraged to elect courses in the department of economics in order to acquire such understanding; and these matters should not be neglected in the curriculum of the business school.

A high order of co-operation between the faculties of the business school and the department of economics should be brought about. An effort should be made to design courses which, so far as possible, will serve the interests of both economics and business students. A joint

committee of faculty members from both units should meet frequently to consider common problems and to infuse into the instruction of the other unit new ideas and points of view. Faculty members of both units can often usefully engage in joint research projects. In many instances, members of both faculties are needed to compose a committee for a candidate for an advanced degree. In those instances where an economist has competence and interest in both managerial and public policies and is acceptable to both faculties, he should be appointed concurrently to both faculties and should teach in both departments.

Role of Economics in Doctoral and Research Programs in Business

May I conclude with some remarks about the role of economics in the doctoral programs and research undertakings of business schools.

The business enterprise is one of the important institutions of American society. In no part of the university can this institution be studied more fruitfully than in the business school, which normally has close contacts with many firms and whose faculty contains specialists in different aspects of management. Being concerned with the organization, leadership, direction, control and policies of business enterprises, and with their environmental conditions, the business school faculty naturally becomes engaged in applied social research. The research projects of faculty members and graduate students will naturally embrace many problems, such as organizational structure, leadership methods, methods of planning, and systems of controlling operations, which are outside the purview of economics. Nevertheless, many aspects of the behavior of the firm lend themselves to economic analysis, as we have seen, and an important segment of the research undertaken by faculty members and doctoral candidates of the business school will be in the field of business economics.

A doctoral program in business administration should, for reasons already given, be built around management theory and policy as a central field of study. However, the utility of economic analysis in dealing with a wide variety of business problems is so great that economic theory should normally be a second field of study by the doctoral candidate in business administration. Thorough training in the use of quantitative methods (accounting, statistics, and mathematics) should be given as well, along with one or two additional special fields of study.

Very often, the doctoral dissertation in business administration will concern a subject to which the economics faculty can contribute valuable guidance, and one or more members of the economics faculty should serve on the guidance committee of the candidate. The courses taken by a candidate in preparation for the examination in the field of

economic theory will probably be given by faculty members of both the economics department and the business school and the examination itself will be formulated and administered as a joint undertaking.

Clearly, it is at the doctoral level, where breadth of scholarship and integration of different disciplines are objectives, that co-operation between the economics and business faculties is most desirable for the candidate and mutually beneficial to the faculties. Economists can help to keep business research rigorous and systematic. On the other hand, the business faculty, with its extensive knowledge of the complex and changing facts of the business world, can help economists appraise the utility of generalizations and keep them in contact with the market place.

A vigorously and steadily growing American economy is of incalculable importance to the future of the free world. The best efforts of both the economics departments and the business schools of American universities will be required in the years ahead to achieve this aim.

DISCUSSION

GEORGE L. BACH: Dean Jacoby's statement of the problem seems to me admirable, as does his general approach to the role of economics in the curricula of schools of business. My brief comments on the role of economics in the curriculum in industrial administration at Carnegie, therefore, can be viewed as one small case study of how economics has, in fact, been fitted into a graduate program in industrial administration along the general lines he has outlined—though with some significant changes. Our program in industrial administration is entirely at the graduate level. I shall comment on this first, and then suggest some implications for undergraduate programs. Throughout, I am talking about our graduate program in industrial administration, not our parallel graduate program in economics.

To answer the question of what should and what can economics contribute to collegiate and graduate training in business administration, we must first be clear what the total business administration program is trying to accomplish. At Carnegie, the central objective of our graduate two-year M.S. program in industrial administration is to train administrators—men whose main job will be as managers, not as specialists working for managers. Administration is the art and the science of discovering what are the most important decisions to make in the organizational environment involved, making these decisions effectively, and seeing that the decisions made are effectively carried out. Our industrial administration program is aimed at training men for such ultimate careers.

Economics plays two major, interrelated roles in this curriculum. The first is the traditional liberal arts, public-policy-oriented role of economics. It is essential for the businessman, as citizen and as civic leader, to understand the broad mechanism of the economic system in which his firm operates and to be able to think intelligently and independently in arriving at positions on major public policy issues. Second, economics can provide some tools, but only a modest part of the necessary tools, for making managerial decisions about the conduct of the firm.

In one sense these roles are separate. In another they shade into one another. As a man reaches top management responsibilities, the portion of his time devoted to the interactions between his firm and the rest of the economic and social system rises steadily. The president of today's great corporation has little direct contact with the day-to-day running of the firm, or even with making the detailed price and production decisions that are the core of traditional microeconomics. Rather he is concerned with long-range planning, with capacity expansion problems, with personnel development, with governmental and community relations, with broad lines of competitive policy, with labor policies, and so on. In most of these, a good job can be done only if the executive has a thorough understanding of the economic, political, and social process, and of the factors underlying public opinion and public policy in these areas.

All this sounds very comforting to economists. But now I come to two

propositions which will be somewhat less comforting. I should like to state them and then go on to consider their implications.

First, the economics courses, or stem, often offered to business school candidates is archaic, redundant, and anemic. It is archaic and redundant in that it generally consists of about the same set of traditional courses that were stylish two decades ago: elementary economics, money and banking, corporation finance, perhaps business cycles, labor economics, and intermediate theory, each taught in its own neat compartment with much emphasis on theory and/or description but little emphasis on an operational approach that forces the student to use the theory and description for himself in making and defending public or private policy decisions. It is anemic because the courses are generally watered down from those given economics majors and lack real intellectual drive and focus.

Second, the economics courses generally taught make little or no direct operational contribution to the making of managerial decisions, in spite of their potential contribution on this score. Economics instructors all too often feel shanghaied into teaching the business school sections, and do so with obvious distaste for the students and for the whole process of money-making in the business firm. Focus of economic analysis on management problems would be letting the infidel into the temple of liberal arts economics—and perhaps beyond the ability of many economics instructors who shy far away from the details of the firms about which they theorize and for whom they prescribe public policy.

Something can be done. First, the business school has a right to ask for a thorough rethinking of the traditional economics offerings in the light of the newly developing conception of professional education for administration and of what has happened to economics in the last quarter century. As a business school dean and as an economist, I can see little excuse in a tight graduate business curriculum for a bevy of traditional economics courses. We economists need to stop and ask: What do we really have to teach, assuming that the main goal is to turn out a student equipped to do some thinking on his own after he leaves school, and what is the most effective way to teach it?

At Carnegie we have come to the conclusion that a great deal can be done in two solid one-year graduate level courses, assuming that quantitative method is taught in a parallel sequence. What goes into these courses? First, economics has much to say about the general allocative behavior of the modern profit-price system, about types of markets, and about the social implications of various types of business behavior. This broad area, central to the world of the businessman, deserves a year (about one-half of this scarce time), including a lot of attention to public policy. Second, economics has much to say about macroeconomics—about the national income accounts, the behavior of the monetary system, the determinants of the level of income, prices, and employment in growth and fluctuations, and public policy measures aimed at stable economic growth. Third, although this represents in large part a pulling together of the above two, economics has something important to say about the distribution of income, with particular reference

to the behavior of labor in the modern economy. These latter two areas together get a year.

Notable by their absence are the traditional courses in money and banking (whose analytical core is included in the macroeconomics course), in corporation finance (whose analytical core is integrated into the basic microeconomics course), in public finance (whose fiscal policy aspects are in the macroeconomics course). Perhaps most significant, the traditional concluding intermediate theory course is missing. Rather than putting a course in pure theory at the end, too late to use for any other purpose in the curriculum, we teach the theory early in, and as part of, the basic micro and macro courses. In them we insist that the theory be used in application to the public policy questions involved—just as we teach part of the traditional applied courses as part of the basic analytical tools needed to deal with the big economic problems.

This brings me to my second point. Economics can be taught so as to be a significant operational tool for making management decisions, even though it is only one such tool and often not the most important. But this calls for a basic change in instructor attitude. We believe that liberal arts understanding of the economic system and focus on public policy issues are not only consistent with but actually helped by some consideration of intrafirm managerial problems. Two examples: First, in teaching microeconomics we consider the business enterprise as a going concern, looking at financial and control considerations in parallel with the traditional micro theory. These are woven together in some managerial economics problems or cases, where students have to make management decisions as a background for going on into the traditional marginal analysis and market implications of such presumed, simplified behavior of firms. In macroeconomics, late in the course students are given a major problem where the firm must decide whether to make a major plant and equipment investment commitment now, based on the type of imperfect, incomplete information typically available in making such decisions, where the whole forecasting problem involves both economy-wide and industry-firm prospects. We believe that such problems at a minimum help develop student recognition of the close "real world" relationship of economics to management problems but in addition help develop some skill in the utilization of central economic concepts (e.g., marginal thinking and national income analysis) in making managerial decisions. More detailed work in managerial or business economics is properly allocated to special courses at a more advanced business-management-oriented level.

But economic analysis today is a far from satisfactory tool for intrafirm managerial decision making. Economists are playing a significant part, along with mathematicians, statisticians, and some representatives of the business schools, in developing such applications, through mathematical programming, dynamic equipment policy, operations analysis, and other such co-operative undertakings. They have, unfortunately, made less headway in working co-operatively with psychologists and sociologists to help on the human and organizational side of making and implementing managerial decisions, but

there are hopeful signs. The main point here is, I think, the importance of emphasizing such co-operative research efforts in connection with the advanced graduate curricula and research training activities of the business schools.

We at Carnegie are convinced that the development of the business schools as true professional institutions and as centers of research must come largely through developing a broad foundation from the social sciences and mathematics, using these basic tools in combined application to the wide variety of business problems. Ultimately this approach looks toward development of bona fide organized disciplines in the various fields of business administration. But such fundamental tools will come only as a result of hard work by both social scientists and business school faculty members, working far more tolerantly and co-operatively than most have in the past. At Carnegie, we see these gains coming most rapidly with an industrial administration faculty composed of economists, social psychologists, political scientists, mathematicians, engineers, and lawyers, together with men trained in the business schools working together toward the development of a management science. We have found no difficulty in keeping alive the liberal arts side of economics in this environment.

One closing comment: What does all this mean for the undergraduate curriculum in business? If the undergraduate business curriculum has a management training goal similar to that indicated above—and many do not—I would change little of what I have said in applying it to the undergraduate level, except to make somewhat more liberal time allocations for economics (extending the four semesters above to five or six) and to place less stress on the role of interdisciplinary research to develop a body of management science.

MELVIN G. DE CHAZEAU: As I interpret Dean Jacoby's excellent paper, I find myself in basic agreement. My differences, if any, are matters of emphasis. And since I shall focus my remarks on the question of the curriculum in the graduate school and preparation for it, I should first make clear the background which conditions these observations.

At the Graduate School of Business and Public Administration at Cornell, we are committed to graduate instruction in business and public administration. At the outset this suggests that our purposes are both broader and narrower than those of university schools of administration on which the main paper was focused. It is narrower in the sense that there is no school of undergraduate training in business administration at Cornell. In our early days, we compromised importantly with a strictly graduate program by permitting double registration. Qualified seniors in other schools or departments of the University, with the consent of their undergraduate school, were permitted to take their first year's work with us in satisfaction of their last year's requirements for their undergraduate degree. In this way, they could complete our two-year graduate curriculum for either the master of business administration or the master of public administration with only one year's work beyond the date of receiving their undergraduate degree.

For many reasons, important among them the difficulty of creating a graduate professional attitude within the first-year class, we have now abandoned this double registration device except in highly selected cases and in conjunction with schools like engineering which have a five-year program for their undergraduate degree. In addition, we have inaugurated within the last three years an advanced degree program leading to the Ph.D. degree under the general supervision of the Graduate School.

While our interests are thus narrowed to graduate instruction, they are somewhat broader than the ordinary graduate school of business administration because we have developed a co-ordinated program of business and public administration in which much of the work is common for applicants for either degree. Differences in preparation for the M.B.A. and the M.P.A. degrees are comparable to the differences that characterize course requirements for different fields of concentration within each degree program, be they marketing, finance, business management, transportation, agricultural management or city management, federal administration, international administration, personnel relations, or public finance administration.

In this combination of business and public administration, we are committed to two principles. The first is the proposition that there are basic uniformities—some call them “universals”—to be discovered in the “science” of administration, whether it be applied to maximize profit in the business firm, to administer a public or government agency, or to manage an institution like a hospital. Of course there are important differences as well, and a study of these differences, in our judgment, serves mainly to sharpen the student's perception of the environmental and purposive forces that impinge on and modify management concepts, policies, and methods in every sphere in which administration is practiced. Incidentally, we are initiating research to explore more extensively and more definitively than our combined experience permits, the areas of uniformity and of difference in the administrative process that may contribute toward something that could be called a “science” of administration.

The second principle that conditions our combined curriculum for business and public administration is the conviction that in the modern world the business administrator must become more familiar with the processes of government and the governmental administrator more sensitive to the managerial requirements of effective operation of private business than a course or two in the relation of government to business can hope to provide. We have sought, therefore, to work into the warp and woof of our course presentations, through analogies and contrasts and through the use of case and problem materials, a familiarity with both business and public administration.

One final note on background. Although I was trained as an academic economist, I have been struggling for many years to inculcate in potential administrators a recognition of the economic factors that condition management decision and planning, both short and long run, and an appreciation of economic analysis as one guide for management action, whether for control and performance standards or for the selective use of resources within

the firm or for the determination of policies which affect the adaptation of the firm to its trade, industry, community, and national environment. Thus it has fallen to me since 1948 to give the three courses with a particular economic content that Dean Jacoby stressed in the graduate curriculum: managerial economics, economic stability (the problem of maintaining high productive employment) and business policy, and competition (the problem of antitrust and government regulation) and business policy. We also give a research course in the economic analysis of industries and of firms within those industries, required of all students offering a concentration in finance.

In trying to satisfy the multiple demands that a dynamic economy makes on professional schools, it is apparent that there is no one purpose to be served and therefore no one curriculum that can be ideal for all. It is equally evident that there is room for selection and specialization for any given program. The Graduate School of Business and Public Administration at Cornell aims to train administrators for business and for the public service. While this primary object is supplemented with substantive study in selected areas of concentration, with the exception of the C.P.A. program in accounting (something of a historical anomaly), no attempt is made to turn out vocational experts in particular phases of business. For example, we do not give work in insurance or real estate appraisal or the like, and we are not likely to do so. But we do take men who have specialized in agriculture, or some branch of engineering, or law, or medicine, as well as liberal arts students, and build on these backgrounds, with particular work in fields of concentration, a competence in the administrative process. It is from this viewpoint that I propose to appraise Dean Jacoby's suggestions with particular reference to his recommendations for an undergraduate program in preparation for graduate training in business administration.

At the outset, there are two conditions of the problem which Dean Jacoby seems to have neglected. The first I have alluded to: a growing proportion of our students (and many of our best) come from other professional schools—agriculture, engineering, law—rather than from liberal arts. The trend reflects the multiple requirements of the business world and is almost certain to grow. For the curriculum, it underlines a diversity of backgrounds that must be built to a minimum level of competence before effective work in management can be realized. It does not create this problem. Even among graduates from liberal arts or from undergraduate business schools, we have found it necessary to devote most of the first year's program to a common core of materials—in administration, in accounting, in finance, in managerial economics, and the like—designed to cultivate an approach to decision making in problem areas and a familiarity with the application of conceptual and analytical tools to the marshaling of relevant data for this purpose. While it is true that economic considerations must infuse almost all courses at the decision-making level, the importance of economics in business and in government operations and the wide disparity in student backgrounds and comprehension have dictated a required course in managerial economics in the first year.

The second condition—that each professional field is seeking to deepen

and widen the preparation of its candidates as the opportunity cost of further residence requirements mounts—is probably one reason why Dean Jacoby favors a two-year undergraduate curriculum in business-oriented subjects. But I find this conclusion unrealistic, indeed somewhat inconsistent, with judgments elsewhere expressed which seem to me more controlling.

For example, Dean Jacoby rightly notes that economics cannot be considered the "master science of business management." Although the economic aspect of business decisions must not be sold short in a going concern, management policies and actions will realize their objectives only as they are successfully adapted to the anticipated reactions of men within and outside the firm. Thus the executive must understand and draw on the elements of many social sciences and techniques in the formulation of his decisions: on political science, psychology, sociology, natural science, industrial engineering, law, statistics, mathematics, history—and we might add accounting, logic, and philosophy. But where are these essential ingredients of the executive's training to be acquired, if not in the undergraduate college? And furthermore, in an age in which the business executive must be increasingly sensitive to public policies and reactions, it would seem even more important that the student's exposure to these courses and to the study of economics should not be diluted by any business orientation.

Dean Jacoby rightly stresses the crucial distinction of the professional business course: it is found in the purposive approach—and consequently the method of analysis—and not the subject matter. With a focus on the need for action in a complex situation—for investment planning, policy formulation, decision making—the critical objective is to perceive the issue in the light of alternatives available, to marshal relevant considerations, and to weigh these considerations in a reasoned course of action. This calls for more maturity and experience than the average undergraduate possesses. It is a process, not of supplying a substantive body of knowledge, but of applying relevant aspects of such knowledge, previously acquired, to a situation. Of course substantive knowledge cannot be assumed (and for the student with an inadequate background intensive supplementary reading will be needed), but the primary stress in graduate instruction in business (and public) administration, in my opinion, must be in this area of "situational thinking." The student who is well grounded in the basic sciences and techniques that Dean Jacoby enumerates will make more rapid progress in acquiring the skills of situational thinking. Better by far that he should have acquired this broad competence in the college than that he should have slighted this training for two years of business-oriented studies at a time when he has neither the maturity nor the experience to profit substantially from them. Where substantive knowledge and experience are limited, the premature attempt to apply derived principles or techniques to a business situation only dimly grasped is almost certain to dilute the subject matter without conveying much of value toward situational thinking.

One last comment with respect to the graduate curriculum itself. While subject matter broadens and deepens in more advanced studies in the field of concentration, the major change that takes place, as I see it, is less a matter

of the amount of information communicated than it is an enlargement of the scope and complexity of the situations within which decisions must be taken and plans formulated. And since I have long since become convinced that students learn less through the ear than through their struggles, oral and written, to search out "solutions" in complex situations, I am less concerned with the enumeration of required courses than I am with the way courses are taught. It has well been stressed that economic considerations (and I would add administrative considerations) pervade all courses in the business curriculum. And as the business situations under analysis become more complex (especially with regard to their time perspective), not only these but many other noneconomic considerations become important parameters of decision. Inevitably, the range of issues will transcend the limits of the instructor's experience and field of specialization. Ideally, at the graduate level (and especially in the second year) courses and seminars should be conducted co-operatively by several members of the faculty representing different fields. This is seldom feasible. But something can be done—and is being attempted at Cornell—to devise a conscious meshing of courses, of materials, and of the timing of presentations in a manner calculated to reinforce and to supplement one another.

DONALD W. O'CONNELL: In commenting on Dean Jacoby's paper, I should like to touch upon each of his four major subjects; to wit, curricular aims, economic content, internal university organization, and the doctoral program. This will provide an opportunity to combine a response to his basic themes with something of a report on economics in the curriculum of the Graduate School of Business at Columbia. There has been no undergraduate school of business at Columbia since 1949.

I will not argue against the proposition that "the primary function of a university school of business is to educate executives," but I think it dangerous to agree to it too quickly. The American community's need for people knowledgeable in business extends to those skilled in business research, those competent to hold positions of "staff" rather than "line" character, those trained to administer governmental and other institutions, and, not to be avoidably circuitous, those prepared to be business educators. If the primary emphasis of a business curriculum is upon preparation for top business management, these other needs may be unnecessarily slighted. Moreover, prospective top business managers may acquire a very limited notion of business as a social institution and management as a career.

From the proposition that the university school of business' primary function is to educate executives, Dean Jacoby argues that the business school must "therefore focus its curriculum upon the principles of management and administration." I should like to dissent. I do not read American society's need for executive leadership as a need for undifferentiated business generalship. There is, to be specific, a prime social and business need for managers who are sensitive to the relatedness and the alienation that exists between the institution of business and other institutions and interests of society. To anticipate the third topic, it might be argued that a focus on

economics is more likely to convey such a social orientation than is a focus on management principles.

But the case against focusing upon management principles is stronger still. Has our crystallization of management principles gone so far as to persuade us that we should all focus upon the training of executives without portfolio? Management is an art that is performed in differing media. Management occurs in a context. The improving art of management is one to which the ablest students will make their own contributions as they go along. They are likely to make valuable ones to the extent that they are themselves well grounded in at least one of the functional aspects or problem areas of business operation. This might mean, as it does at Columbia, that the functional aspect (say, industrial relations) or the problem area (say, international business operations) may provide the curricular focus for some students. Then, if the managerial viewpoint is to be developed, it may be done, as it is at Columbia, both within courses in, say, industrial relations and international business and in courses in management principles and policies.

Moving to the subject of economic content, I should like to endorse the notion that economic principles and ideas "should be worked into the warp and woof of many business courses." Economics has two things to give the prospective businessman: first, a method of reasoning and, second, orientation toward general welfare. These two aspects of economics can be woven into the fabric of courses in business. I do not think that it follows that so many economics courses as Dean Jacoby prescribes are necessary as a part of a curriculum designed for managers. Economics has, to be sure, more to give than reasoning and viewpoint. It has an intellectual history, structures of theory, advanced analytical techniques, and a body of fact and serviceable hypothesis. These may be as necessary for the business economist as for the economics professor. They are dispensable so far as the prospective business manager is concerned. If they are incorporated into separate courses in a graduate school of business, as they are at Columbia, it is not because they are meant to fit into the curriculum of the prospective manager without portfolio. It is because, in a graduate school of business that has aspirations to share the highest intellectual responsibilities that a university cultivates, students of one or another aspect of the dominant social institution of our time, business, should have the opportunity to exploit economics fully in its study. A further point might be made. Big business needs economists, but this need is not synonymous with its need for managers. Prospective business economists require elaborate economic training. The training should be business-oriented. This, incidentally, is the training that should include studies in operations research and in the uses of electronic computing equipment. Courses offering such training need not, at this stage of business evolution, be considered an indispensable part of the curriculum of the prospective general executive.

What should the graduate school of business ensure that the prospective manager know of economics? I should say, first, microeconomic analysis edited for empirical application and stressing reasoning in terms of alterna-

tives; second, macroeconomic analysis stressing the viewpoint of general welfare and its relationships to particular welfare; third, macroeconomic analysis stressing the forms in which data concerning the economy and the world come to us and the conditions of stability and growth; and, fourth, the limitations of economic analysis for entrepreneurial purposes. All this need not take up more than a fifth of a two-year graduate business curriculum, even for the liberal arts graduate with only an introductory economics course behind him. Not even that high a proportion would be needed for economics courses in a graduate school that infuses logically appropriate parts of its curriculum with the economic viewpoint. In asserting this standard, I am very nearly reporting on the practice at Columbia. But only very nearly, for we do not require that all students go so far in economic course work as might be necessary to assure their reaching the standard I have implied. It is there for them, but most of it is elective. Our main way of ensuring a decent degree of habituation to economic reasoning and viewpoint lies in the strong economic orientation of the faculty.

I subscribe to Dean Jacoby's judgments on the desirability of autonomy within the university for both the business school and the department of economics. Columbia's experience shows that it has its value to each of them. There is an advantage to business school students in being members of a university, however. Our own students are in some cases required to take and in other cases encouraged to take courses offered in the Department of Economics and in other units of the University. So far as the future is concerned, I can report my impression that the Business School at Columbia leans increasingly toward development of its own offerings in economic analysis. This I judge to be the only sure road toward an ever more satisfactory managerial orientation.

I should be sorry to see doctoral programs in business "built around management theory and policy as a central field of study." The nature of contemporary business and its role in society are not necessarily best examined within the framework of management theory. Yet they are proper subjects of advanced study. Doctoral candidates should be permitted to approach them from within other contexts. Further, the staff work of modern business offers enough challenge to the most imaginative student. He should be encouraged to center his studies in one of the substantive staff fields if he should wish to. If, indeed, he is to be benefited by the guidance of members of other faculties than business, a mandatory focus on management theory might shut out more valuable insights than it would let in. I am not sure, however, that we have not gone too far at Columbia in attenuating the managerial emphasis for our doctoral candidates. They must meet all of the requirements exacted of Ph.D. candidates in the Department of Economics and, in addition, exhibit basic competence in accounting. Such decided orientation toward formal economics sometimes limits an interest to press on with some exclusiveness in a business field. It does help ensure, however, that the full facilities of the University may be drawn upon in the general case and that most doctoral candidates in business will be encouraged to range over

a wider spectrum of meaning and significance than they would if led to focus upon management theory.

ARTHUR M. WEIMER: Dean Jacoby has presented a careful and thought-provoking statement on the subject of economics in the curricula of schools of business. In general, I agree with the position he has taken. His explanation of the relationships between economics, political sciences, psychology, history, mathematics, and the physical sciences on the one hand and business administration on the other coincides with my own thinking.

While the relationship between the study of economics and of business administration tends to be somewhat closer than in the case of many of the other social sciences, it is important to recognize that the field of business administration is a much broader area than one of applied economics. The breadth and diversity of subject matter involve applied mathematics, psychology, sociology, political science, and many other areas. Thus it seems appropriate that departments of economics be administered by colleges of arts and sciences rather than by schools of business.

Regardless of the organizational structure, however, the relationships between the teaching of economics and the teaching of business administration may frequently be clouded and uncertain. Much depends on the interests of specific faculty members. It is possible to have a considerable amount of economics taught in a school of business even if there is no organizational or curricular provision for such an arrangement. The reverse situation is also possible.

Ideally, general economic theory and principles should be taught by the economics department. It would appear undesirable to have paralleling courses in the school of business. In the applications of principles and theory to the general subject of administration, however, there are many opportunities for co-operative effort between those whose primary interest is general economics and those whose primary interest is the study of business and its administration.

Many economic principles form integral parts of courses in business administration, just as do legal principles, mathematical principles, principles of sociology and psychology. An excellent statement in regard to the relationships between the social sciences and business administration was presented by Robert D. Calkins, President of the Brookings Institution, in a speech to the American Association of Collegiate Schools of Business last spring. In comparing these relationships, he said:

Administration is fundamentally the direction of affairs. It is purposive action, and to an increasing degree it is informed, rational, and deliberate action. It draws upon the knowledge of the physical sciences and the practical arts; it employs the knowledge and techniques of the social sciences; but it is overwhelmingly concerned with the choice of ends, ways, and means for the attainment of desired results. It is curbed by moral codes and ethical principles; and it is driven by springs of ambition and devotion that largely escape analysis.

The process requires the use of knowledge and understanding, but the ultimate objective is not explanation and understanding as it is in science. Its goal is not knowledge for knowledge sake. Nor is its end any intellectual quest for the joy of discovery. The end of administration is the achievement of purpose; that purpose is action which

yields desired results. Administration is unescapably concerned with choice and action, and it is therefore concerned with the future consequences of action.

The three main elements of administration are the formulation of goals, the choice of ways and means, and the direction of people in some group purpose. These activities may be considered as consisting mainly of two processes: the process of decision-making and the process of execution, or action. The former determines what is to be done and how, while the latter puts decisions into action and oversees the process.

... I shall stress the process of decision-making, for in modern administration it is the central activity, and in many ways the most crucial one.

As a tentative basis for considering relationships between economics and business administration, the following suggestions may be pertinent:

1. The work of the school of business is concerned primarily with the study of management and administration, including the processes of planning, organizing, motivating, and controlling the operations of business firms. Policy determination and decision making on all executive levels are important phases of this field.

2. The management and administration of business firms is carried on within the general framework of the American and world economies. Thus schools of business are justified in giving special attention to the analysis of economic and business conditions; to the relationships between business, government, and the community; to the public responsibilities of business executives and related topics.

Whether directly or through the department of economics, the school of business must provide for its students adequate opportunity to acquire a sound understanding of the economic system and its position in the economic structure of the world at large, knowledge of the functioning of business enterprises within this framework, and familiarity with methods of economic and business analysis.

3. Schools of business typically undertake to provide specialized training in such divisions of the field of management and administration as production, marketing, finance, accounting, personnel and human relations, and such specialized areas as insurance, transportation, real estate, and the like.

4. In some cases, courses are developed which combine work in the business administration field with that of some other major discipline. Examples include business history, statistics and data processing, business government relationships, business law, and business education.

One of the problems which has been encountered by schools of business in recent years has been the tendency for faculty members in the field of economics to pursue highly specialized interests. There appears to be less interest in helping students in business administration and in other divisions of the university to understand the general framework and the broad principles which help to explain the operations of the economic system than was the case a generation ago. General economics tends to be neglected in favor of the specialized study of such topics as monetary policies, national income accounting, fiscal policy, and the like.

In some cases, departments of economics are serving neither the requirements of the other social sciences nor those of schools of business, schools of public administration, schools of law, schools of education, or schools of engineering. This does not suggest that economic departments should provide

courses in economics for lawyers, economics for educators, economics for engineers, or economics for those interested in business administration. It does suggest, however, that a general understanding of the American economic system and its functioning in the world economy is important for students in all of these areas as well as for students in other social and physical sciences.

EWALD T. GRETHUR: In the main, I am in agreement with Dean Jacoby's excellent statement, including the commendation for the recommendations in the report of the 1950 American Economic Association Subcommittee on the Study of Economics in Schools of Business under the chairmanship of Professor Howard R. Bowen of which I was a member, and his conclusions: (1) That there are no clear boundary lines as to what constitutes "economics." (2) That a business school must have an interdisciplinary footing and that one of these basic disciplines, and to this point the most important relatively, is economics. (3) That the study of economics is "an essential part of the intellectual equipment" of the business executive. (4) That the areas of "economics of enterprise" ("the economics of the firm") and business cycles in terms of national income analysis are basic in the curricula of schools of business. (5) That students of business administration should be "taught how to use economic principles and ideas in their courses in the major functional fields of management."

Since Dean Jacoby did not spell out the content of the field of management theory and policy, which he considers the basic discipline for advanced training in business administration, I cannot be certain as to the extent of our agreement on this field. It would be my view, however, that a field so designated must inevitably include a considerable amount of the analysis characteristic of the economics of enterprise. My surmise is that when the boundaries and intellectual content of the field of management theory and policy have been established we shall discover that it is not entirely separate and different from the related fields of economics of enterprise or economics of the firm. It is inconceivable to me that disciplined minds could develop mutually exclusive types of analysis and bodies of knowledge under these heads. This is not to say, however, that a distinctive contribution may not be made under the designation "management theory and policy" including contributions to economic analysis and to the broader area now being labeled "behavioral science."

I am not in complete agreement with Dean Jacoby's statement that "the starting point of any useful discussion of this matter must be a recognition that the university business school and its department of economics have significantly different objectives." There might not be much basis for disagreement if business schools limited their programs entirely to the training of top executives, as Dean Jacoby suggests, but business schools are also very much concerned with educating professional personnel below the level of top management, such as accountants, marketing analysts, statisticians, technicians of various sorts, financial analysts, actuaries, sales supervisors, real estate appraisers, planners, traffic managers, etc. And some business schools are providing training for secretaries, clerks, salesmen, and the host of business

employees in lower echelons. The point, so far as our problems is concerned, is that the character of the economic analysis that may be helpful and desirable varies greatly as among the diverse business professions. Consider, for example, the differences in analytical needs and preparation as among accountants, personnel supervisors, real estate appraisers, and experts in traffic management. All of these persons, of course, should be familiar with the economics of the firm and business cycles and national income types of economic analysis, but each in addition must have special areas of competence requiring some variant of economic analysis, together with other forms of analysis. Furthermore, it is in these special areas that the boundaries of economic analysis and of other types of analysis often become so blurred as to make it difficult, and perhaps even dubious, to try to define them.

Furthermore, whether a person is labeled an accountant, economist, real estate appraiser, financial analyst, or what not, there will be in common to a considerable extent the same type of descriptive and institutional background (a certain amount of factual knowledge is important to everyone); the same general environmental conditions comprising the whole complex of historical and current social forces, including relations with government; the same necessity for rigorous disciplined analysis.

The conclusion, so it seems to me, is that there is and must be a large and in some instances complete overlap in the character of the analysis carried on by some professional personnel in business administration and by applied economists.

This still suggests another conclusion. In recent years, departments of economics have lost interest in certain broad areas of applied economics, such as transportation and public utilities and insurance. Consequently, schools of business have tended to fill this vacuum and in a manner that has maintained these fields as areas of applied economics. In fact, looking ahead it seems evident that even more applied economics may become the responsibility of faculties of schools of business.

Furthermore, the domain of the economist does not and should not remain fixed. Notice, for example, the numerous economists, members of economics departments, who are busily at work in econometrics, input-output analysis, mathematical programing, operations research, and other forms of applied analysis. It is not surprising that some of the older members of the profession have become concerned as to just what economics is all about nowadays, especially since some of this analysis might appear to be more appropriate to faculties of schools of business, departments of mathematics or of engineering.

My final point, therefore, is that although schools of business and economics departments in a sense, of course, do have different objectives, it may turn out to be a mistake to overemphasize this difference. One may agree broadly that the relationship between business administration and economics is similar to that between engineering and physical science, but in the same breath one should add that there is much engineering under the banner of physics and chemistry and significant contributions to basic science are being made by engineers.

I do not believe that I thoroughly grasped the significance of this conclusion until I asked my colleagues, in preparation for this meeting, to give me brief statements as "to the extent to which economic analysis and business administration analysis can be and are woven together in courses in business administration." Please notice that these are the tool and functional courses in business administration and not courses in the economics of enterprise and in business cycles and forecasting required of all students. I wish I had time to report on what I learned, course by course and field by field. It is evident that almost all varieties of applied economics are being woven into the fabric of our course offerings in addition to the materials and insights from other disciplines and the unique materials and insights of managerial analysis. Time and again the character of the weaving and of the resulting patterns is such as to make it of little use to try to draw sharp lines of distinction.

Educational programs in business administration and in applied economics should travel on parallel routes with numerous crossover points rather than divergently. Only in this manner will each set of disciplines nurture each other, while at the same time making its own unique contributions.



AMERICAN ECONOMIC ASSOCIATION

PROCEEDINGS

OF THE

SIXTY-EIGHTH

ANNUAL

MEETING

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NEW YORK, NEW YORK

DECEMBER 28-30, 1955

PROCEEDINGS OF THE AMERICAN ECONOMIC ASSOCIATION

ANNUAL BUSINESS MEETING, DECEMBER 30, 1955

HOTEL COMMODORE, NEW YORK, NEW YORK

The Sixty-eighth Annual Business Meeting of the Association was called to order in the Main Ballroom at 5:10 P.M. by President John D. Black. The minutes of the business meeting of December 30, 1954, were approved, actions of the 1955 Executive Committee ratified, and the reports of the officers and committees accepted. All minutes and reports are published in the "Proceedings."

High lights of the year's activities were described by Secretary-Treasurer James Washington Bell, who also presented an account of the financial operations, investment holdings, and the present condition of the Association's finances. He called attention to the narrow balance between operating income and expenses and indicated the identity of the profit taken on sale of securities and the amount of the year's surplus income. Despite increased expenses, it still appears possible to maintain a balanced budget with \$6.00 dues. It will be necessary to have a substantial increase in membership to finance the 1956 *Directory*, as we are making every effort to produce a very comprehensive revision. The Secretary-Treasurer's report was accepted. Reports of the Secretary, the Treasurer, the Finance Committee, and of the Auditor are found in the "Proceedings."

The Managing Editor of the *American Economic Review*, Bernard F. Haley, reviewed the operations of the *Review* office and the work of the Editorial Board. This report is presented in full in the "Proceedings."

Three items of interest and importance were reported in connection with the activities of committees: (1) The shift of the *Blakiston Readings* and *Survey* volumes to Richard D. Irwin, Inc., has enabled us to offer a surplus inventory sale of these items at especially low prices to members, and in order to make the offerings even more attractive, Richard D. Irwin, Inc., has arranged "package deals" embracing all of the Association-sponsored series. We urge members and libraries to take advantage of this opportunity to complete their sets of the "Readings," "Survey," and "Translation" series. (2) The International Economic Association has announced the First Congress, on "Stability and Progress in the World Economy," to be held at Rome, September 6-11, 1956. All members of associations constituting the federation are invited to attend. Announcements will be made available through the American Economic Association Secretary's Office. Note was made of the reprint series, available through the Macmillan Company, New York, at special prices to members. (3) The Committee on Economic Education, now constituted a standing committee, has been handicapped by the lack of a roster of names of those of our members actively interested and engaged in economic education in its various phases. We are planning a special item in the forthcoming

questionnaire which will be sent to all members in connection with the 1956 *Directory* from which we hope to get a useful return.

The limitation of time prevented hearing reports from our representatives on the ACLS, SSRC, and NBER. Members will find reports in the "Proceedings."

An event which deserves more formal or ritualistic observance is the awarding of the Association medals. For lack of a more appropriate occasion, the award of the John Bates Clark medal was made at the business meeting. Those in attendance were impressed by the presentation of the beautiful, inscribed medal by President Black to James Tobin and the citation: "To that American economist under the age of forty who is adjudged to have made the most significant contribution to economic thought and knowledge."

The Secretary presented the Committee on Elections report and the certification of the election of new officers for the year 1956 as follows:

In accordance with the bylaws on election procedure, I hereby certify the results of the recent balloting and present the reports of the Nominating Committee and the Committee on Elections.

The Nominating Committee, consisting of Edwin G. Nourse, Chairman, William Haber, Ewald T. Grether, Harlan L. McCracken, Aryness Joy Wickens, and Harold F. Williamson, presented to the Secretary the list of nominees for the respective offices:

For President

Edwin E. Witte

For Vice-Presidents

Richard B. Heflebower
Paul T. Homan
Fritz Machlup
Ralph A. Young

For Executive Committee

Henry B. Arthur
William J. Fellner
Walter E. Hoadley, Jr.
Richard A. Musgrave

The Committee on Elections, consisting of Paul L. Morrison, Chairman, Sylvester M. Frizol, and James Washington Bell, prepared biographical sketches of the candidates and ballots were distributed early in November. The canvass of ballots was made on December 12, 1955, and the results were filed with the Secretary.

From the report of the Committee on Elections, I have the following information:

Number of envelopes without names for identification	43
Number received too late	21
Number of defective ballots	—
Number of legal ballots	2,713
Number of returns from the mail ballot	2,777

On the basis of the canvass of the votes cast, I certify that the following persons have been duly elected to the respective offices:

President (for a term of one year)

Edwin E. Witte

Vice-Presidents (for a term of one year)

Paul T. Homan
Fritz Machlup

Members of the Executive Committee (for a term of three years)

William J. Fellner
Richard A. Musgrave

After the announcement of the election results, retiring President Black presented President-elect Edwin E. Witte, who responded with brief remarks.

Attention was called to the preparations being made for the publication of the 1956 *Directory* and the need of getting the full co-operation from our

members. In the first place, we would like to enlarge our membership so as to include all economists and others whose names and "who's who" descriptions should appear in the *Directory*; in the second place, we want as full response as possible in order to have complete descriptions of our members; and, finally, we plan to adopt some means of making this data more accessible and available.

The following resolutions were presented by Professor Bond and approved unanimously:

The Association is greatly indebted to President John D. Black, who bore the major responsibility for the preparation of the program of this annual meeting, and to the members of the Executive Committee and others who so ably assisted him in this difficult and time-consuming task.

The Association expresses its thanks to the members of the Local Arrangements Committee: George Garvey, Chairman, Sidney E. Rolfe, Vice-Chairman, and V. Whitbeck, Treasurer. Thanks are also due Miriam Civic, Chairman of the Registration Committee, John W. McCalley, Chairman of the Information Committee, Henry W. Steinhaus, Chairman of the Printed Program Committee, H. C. Carr, Chairman of the Employment Committee, Thomas O. Waage, Chairman of the Publicity Committee, James J. O'Leary, Chairman of the Exhibits Committee, and Carl H. Madden, Chairman of the Room Arrangements Committee. Special appreciation is also due to the various local institutions and corporations which have released certain personnel to serve in various administrative capacities to make our meeting a success and most pleasant. The Federal Reserve Bank of New York merits special attention. The Association is grateful to the management and personnel of Hotel Commodore for ministering to the comfort of the delegates and visitors to this convention and to the press and other agencies of communication for their coverage of the proceedings.

Acknowledgment is also made of the co-operation of other professional organizations meeting simultaneously in this city in making a co-ordinated and constructive joint program.

Finally, the Association extends its sincere thanks to its able and conscientious Secretary, James Washington Bell, and his staff for their continued and very effective contribution to the arrangement of these annual meetings.

Floyd A. Bond, *Chairman*
J. F. Bell
Everett C. Bancroft

The meeting was adjourned at 6:10 P.M.

JAMES WASHINGTON BELL, *Secretary*

REPORT OF THE SECRETARY FOR THE YEAR 1955

The official acts of the Association are recorded in the minutes of the Executive Committee. The minutes of the spring and December, 1955, meetings are presented herewith. Following these is a summary of the year's operations, with comments and interpretations concerning the Association's activities.

MINUTES OF EXECUTIVE COMMITTEE MEETINGS

1. Minutes of the spring meeting held in Rye, New York, March 25-26, 1955:

The second meeting of the 1955 Executive Committee was held at the Westchester Country Club, Rye, New York, March 25-26, 1955. The following were present: J. D. Black, presiding, and J. W. Bell, N. S. Buchanan, Gerhard Colm, Milton Friedman, B. F. Haley, E. J. Hamilton, C. B. Hoover, Simon Kuznets, Ruth Mack, and P. A. Samuelson. Absent were: G. J. Stigler, D. M. Wright. Attending as members of the Nominating Committee were: E. T. Grether, H. L. McCracken, E. G. Nourse, Arnyess J. Wickens, and H. F. Williamson (William Haber was absent); and as guests, G. L. Bach and F. H. Knight.

1. *President's Remarks* (J. D. Black). The meeting was called to order at 10:00 A.M. President Black outlined the order of business and the procedure to be followed in the two-day meeting.

2. *Minutes*. The minutes of the December 28 and 30, 1954, meetings were approved, with minor corrections, as distributed in page proof.

3. *Report of the Secretary* (J. W. Bell). The operating results of the Detroit meeting were submitted in outline, pending receipt of complete report from the Local Arrangements Committee. Results of the mail ballot distributed to members along with their dues bills, asking for expression of preference with respect to time and place of future meetings, showed that the Christmas recess is still the preferred period, with late August-early September next and late January and June a weak third and fourth choices. Only 700 of the 2,300 returns have been processed. The remaining ballots will be tallied but no change is expected in the results. With respect to type of meeting, very little preference seems to exist in favor of a joint session every third year over joint sessions every year.

The Secretary reported slight changes in membership. Ways and means of increasing membership were discussed, especially in connection with the revision of the *Directory* during the coming year. The secretarial operations connected with the *American Economic Review* were described, the copy of the complimentary subscription list was circulated, the past presidents' photos series was reported completed and the continuation of the publication of the past secretaries and treasurers was approved; "Vacancies and Applications" section was discussed, as was also the section devoted to exchange advertisements, and permissions to quote and reprint and so forth. Progress on the *Papers and Proceedings* volume was reported, examples were given of undue liberties taken by participants in running up expenses, and the proposal to preclude such practices by levying costs on the participants was approved. Plans for elaboration of the revised *Directory* were discussed and approval was given to the Secretary to put our members on punch cards if feasible and to conduct a concurrent membership drive in connection with the announcements and questionnaire. The "Survey," "Readings," and "Translation" series of publications were reported as finding a continuous market. The sales campaign staged by Irwin last fall has been productive and some progress has been made in dealing with the inventory problem presented by the Volumes I-V which were published by Blakiston. Steps are being taken to transfer the total stock of volumes, bound and in sheets, from Blakiston to Irwin and to obtain release from any further contingent liability to Blakiston on account of this inventory.

In response to a letter from the Carnegie Corporation concerning their grant of \$8,000.00 for writing *Survey* Volume II, the Secretary reported that a paper profit of \$681.99 was reported by Richard D. Irwin, Inc., on the sale of 936 copies to date. Although our total arrangement with the publishers does not yet show an over-all net

profit for the Association-sponsored books, the Secretary recommended that in view of the salability of this volume we might appropriate a sum roughly equal to the paper profit and apply it as an installment in reimbursing the Carnegie grant. This proposal was APPROVED.

Attention was called to our contingent liability with respect to the 600 copies of the IEA volume on the teaching of economics which we cosponsored with the Royal Economic Society. Copies of the revised information booklet were distributed. Committee activities were reviewed, with special attention to vacancies on committees, reports on file, committee activity and appropriations.

Although the present terms of office of the Managing Editor, Secretary-Treasurer, and Counsel do not expire until year-end, the Committee considered it desirable to act at this time. The Editor and Secretary withdrew and after discussion a VOTE was taken re-appointing present incumbents for another three-year term. A previous VOTE regularized the term of office of B. F. Haley (selected to fill P. T. Homan's unexpired term) so as to terminate his present term at year-end, 1955.

4. *Reports of the Treasurer and Finance Committee* (J. W. Bell). The cash position, financial condition, and status of our investment holdings were reported. No change in the amount of membership dues is proposed. Current income is in line with present activities and services. A proposal to increase advertising rates some 20 per cent was made and the Treasurer was authorized to act at his discretion. Investment policy was discussed in the light of current market fluctuations.

It was VOTED to approve former action with respect to the powers of the Treasurer and the following resolutions were passed:

1. *Be it resolved*, That State Bank and Trust Company be and it is hereby authorized and directed to accept and acknowledge the written directions and verbal authorizations of the Treasurer or Secretary of this organization, and to comply with all instructions of said Treasurer or Secretary in buying, selling, handling, transferring, investing and reinvesting the securities deposited with it under the terms of an agreement between this organization and the State Bank and Trust Company dated May 26, 1925.

2. *Be it resolved*, That the State Bank and Trust Company, a bank of Evanston, be and hereby is designated a depository in which the funds of this Corporation may be deposited by its officers, agents, and employees, and that the Secretary-Treasurer shall be and he is hereby authorized to endorse for deposit or negotiation any and all checks, drafts, notes, bills of exchange, or orders for the payment of money, either belonging to or coming into the possession of the Corporation; endorsements for deposit may be the written or stamped endorsement of the company without designation of the person making the endorsement.

And be it further resolved, That the Secretary-Treasurer shall be and hereby is authorized to sign checks and orders for the payment of money withdrawing funds so deposited, and that the said State Bank and Trust Company shall be and hereby is authorized and directed to honor and pay any checks so drawn, when so signed and countersigned, whether such checks be payable to the order of the officer signing or countersigning them, or any of said officers in their individual capacities or not, and whether they are deposited to the individual credit of the officer signing or countersigning them, or to the individual credit of any of the other officers or not.

5. *Report of the Managing Editor* (B. F. Haley). After hearing Professor Haley's report, it was VOTED to authorize the enlargement of the Board of Editors from six to eight, and a plan was approved for the selection of three additional members in 1956 and 1957 and thereafter two, which would effect such a transition. A panel of nominees was submitted from which the Managing Editor was authorized to select new members of the Board.

6. *Reports of Standing and Special Committees.*

6a) *Committee on Research and Publications* (J. P. Miller; S. E. Leland, acting). In the absence of J. P. Miller and of the Acting Chairman S. E. Leland, Professor Bell reported on the status of the publication series and the Committee recommendations with respect to (1) a *Survey* Volume III, "Methodological—Economics in Action," and (2) a proposed cumulative bibliographical index.

After a full consideration of a memorandum submitted by Gerhard Colm, it was VOTED that the proposed *Survey* Volume III on economics in action be given further consideration by the Research and Publications Committee. In its present form, it was not considered appropriate as a volume of the "Survey Series" which the AEA might sponsor.

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After considering the four variations of the cumulative bibliographical index proposal,

it was VOTED to refer the matter back to the Committee. The project was approved in principle but doubts were expressed concerning coverage and costs. The Committee was asked to submit specific proposals concerning coverage of *AER* and *Papers and Proceedings* from 1911 to date on the one hand and the wider coverage of a group of economic journals on the other with respect to (1) titles, classified by subject-matter groups, (2) authors of articles and communications by classified groups, (3) including book reviews, by title and authors, and (4) author index of reviews only. A suggestion was made that estimates be obtained for publishing the index by photo-offset process. The work of preparing an index for the *American Economic Review* and the *Papers and Proceedings* should be begun in any event, since this work will have to be done whichever of the two projects is adopted; although even in this case the Committee was asked to submit a specific proposal with regard to coverage and form.

6b) *Committee on Economics in Teacher Education* (B. W. Lewis). A communication from the Chairman indicated the desire of the Committee to withhold further report on this subject until after a ten-day conference in August at which Messrs. Lewis, McIsaac, and Strayer would have a more favorable opportunity to consider the recommendations for education at all levels.

6c) *Committee on International Co-operation* (Gottfried Haberler); *International Economic Association* (H. S. Ellis). A communication was read from H. S. Ellis, expressing a desire to present at a later date a full report, reviewing the relationship between the AEA and the IEA, looking forward to the long term and involving the financing of the IEA.

In view of the reconstitution of this Council, it was VOTED to revise our provisions for the selection of representatives to the IEA. Two of the present four representatives—H. S. Ellis and Gottfried Haberler—were redesignated as representatives and the other two—Milton Friedman and Max Millikan (whose terms technically do not expire until the end of 1958)—were asked to resign in favor of alternates who might be selected in view of their presence in Europe at the time of the IEA meetings. The relationship of the AEA to the IEA and our financial aid to IEA were only briefly discussed, but it was agreed that if changes are proposed, the composition and functions of the Committee on International Co-operation be reviewed.

6d) *Committee on Honors and Awards* (N. S. Buchanan). The Chairman reviewed the history of Committee action with regard to the J. B. Clark award and explained why no 1953 award was made. The Committee recommendations for the 1955 award were presented and ballots were taken which finally resulted in a selection. The vacancy on the Committee created by the resignation of J. J. Spengler has been filled by the appointment of W. Blair Stewart.

6e) *Committee on Foreign Honorary Members* (W. W. Leontief). The Committee activities were described by P. A. Samuelson in the absence of W. W. Leontief. The matter of filling five vacancies in our list of foreign honorary members was discussed at great length and it was finally VOTED to ask the Committee to consider more candidates (in addition to the two recommended in their last report, plus two alternates) and that the Committee continue to concern itself with the double criteria of country coverage or distribution and the quality of outstanding economists that it has been our tradition to appoint.

6f) *Status of the Profession*. The Sharfman report was made the subject of lengthy discussion and no definite agreement could be reached concerning the functions of the AEA with respect to cases involving academic freedom or civil liberties. However, it was agreed that we should have a standing committee with a title less general than "status of the profession" and operating under a scope of reference such as stated in the Sharfman report, reporting occasionally but at least annually to the Executive Committee on matters concerning academic freedom or civil liberties of economists and making recommendations as occasions arise for the performance of further functions. It was the sense of the discussion that interim reports of the standing committee be published in the *Review* if so directed.

6g) *Ad Hoc Committee on Implementing Recommendations of the Bowen Report* (G. L. Bach). G. L. Bach elaborated the recommendations made by this Committee and explained reasons for points of disagreement among its members. It was VOTED to discharge the Committee, with our appreciation. G. L. Bach was requested to discuss certain items with his colleagues and under this narrower scope of reference to report back, possibly at the December meeting.

6h) *Nominating Committee* (E. G. Nourse). The Nominating Committee, having agreed upon the selection of their nominee for president, requested the meeting of the Electoral College at 4:20 P.M. This was granted, in view of the fact that their candidates for other

members of their slate were dependent upon who was selected for the presidency. Discussion and balloting proceeded and by dinner time the joint committees had concluded their work. The candidate was located over long distance telephone and his acceptance obtained at 8:15 P.M. The Nominating Committee thereafter reconvened and completed their slate.

7. *Reports of Council Representatives.*

7a) *ACLS* (F. H. Knight). After listening to a report by F. H. Knight, it was VOTED to authorize Knight and J. W. Bell to draft a resolution of strong endorsement of the ACLS by the AEA. Mortimer Graves, director of ACLS, was unable to accept our invitation to attend this meeting.

7b) *SSRC* (J. P. Miller). The Secretary reported that word from Pendleton Herring expressed his regret that he was unable to attend our meeting but that he would have no additional matters to report on the activities of the SSRC in any case. J. P. Miller was selected as AEA representative for a three-year term (1956-58).

7c) *NBER* (J. H. Williams). Word from J. H. Williams indicated that no further developments had occurred and that the December report brings us up to date. Action taken by J. D. Black and the Secretary, placing J. H. Williams in nomination as our representative to the National Bureau, was validated. At its March meeting, the National Bureau accepted J. H. Williams as the AEA representative for a five-year term, beginning March, 1955. Mr. Williams, who had served through the unexpired term of D. H. Wallace, indicated that he might have to resign in another year or so.

8. *Annual Meetings.* The Secretary reported that he had had a meeting with the Chairman of the Local Arrangements Committee, George Garvy, and that preparations for the December meeting in New York were well under way. The Secretary reported more in detail the preliminary processing of the membership mail poll on the time and place of future meetings (see Secretary's report).

9. *Miscellaneous and Unfinished Business.* All necessary business having been completed, certain items of new business were taken up.

10. *New Business.*

10a) *Reappointment of Officers.* The Editor, Secretary-Treasurer, and Counsel were reappointed for a three-year term, with expressions of warm appreciation on the part of their fellow officers. (See Secretary's report.)

10b) *Suggestions for AEA Activities.* Under this caption, a number of items were discussed and it was suggested that there appear in the minutes an authorization that the Managing Editor of the *Review* and the Secretary prepare lists of fellowships, scholarships, grants-in-aid, honors and prizes, and so forth for publication in the *Review* and in the *Directory*—a current list appearing in the *Review* and a more permanent or continuing list of awards to be published as an exhibit in the *Directory*. It was suggested that the current or contemporary list of assistantships, scholarships, fellowships, and grants-in-aid be prepared by B. F. Haley and be published as a section of the *AER* which could be separately printed and hence made available for distribution outside of our membership. The general purpose of such lists of awards is to aid in the organization of the "market for scholars" and would in a sense complement the efforts we are making in the employment market for economists.

J. D. Black read a communication from the manager of one of the university presses, suggesting that a round table conference of editors and publishers be held during our annual meetings. Interviews with other managers of university presses confirmed an interest in such a round table and members present generally expressed their approval of the idea.

10c) *Program for 1955* (J. D. Black). The balance of the final session was devoted to a preview and report of progress in organizing the sessions of the annual meeting.

The meeting was adjourned at 12:30 P.M.

2. Minutes of the Christmas meetings held in New York, New York, December 28 and 30, 1955:

The third meeting of the 1955 Executive Committee was called to order at 10:00 A.M. December 28, at Hotel Commodore, New York, New York, J. D. Black presiding. Others present were: J. W. Bell, N. S. Buchanan, Gerhard Colm, Milton Friedman, B. F. Haley, E. J. Hamilton, Ruth Mack, P. A. Samuelson, G. J. Stigler, and, as guests, E. E. Witte, P. T. Homan, Fritz Machlup, J. P. Miller, H. S. Ellis, B. W. Lewis, S. E. Leland, Alexander Gerschenkron, and D. G. Johnson. Absent: Simon Kuznets.

The first meeting of the 1956 Executive Committee was held on December 30, at 6:00 P.M., E. E. Witte presiding. Others present were: J. W. Bell, J. D. Black, N. S.

Buchanan, W. J. Fellner, Milton Friedman, H. S. Ellis, P. T. Homan, C. B. Hoover, Fritz Machlup, Ruth Mack, R. A. Musgrave, G. J. Stigler, and, as guests, Gerhard Colm, D. M. Wright, Jacob Viner, E. L. Bogart, E. G. Nourse, I. L. Sharfman.

The account of the proceedings given below does not follow the chronological order of business but treats the sequence of items as they were listed on the agenda.

1. *President's Remarks* (J. D. Black). In outlining the order of business, President Black called attention to the desirability of considering first those items necessary to complete the year's operations before taking up those which could be tabled for later consideration.

2. *Minutes*. The minutes of the March 25-26, 1955, meeting, held at the Westchester Country Club, Rye, New York, were approved, with the addition of the ACLS resolution which had been ordered drafted and spread on the minutes. (See item 7a, below.)

3. *Report of the Secretary* (J. W. Bell). The operations of the Secretary's Office were reported, under the usual headings, with special consideration of the following subjects.

Last year's mail poll on the time, place, and character of annual meetings was reported in full, together with an analysis of the composition, growth, and geographical distribution of membership. A summary of statistical results of the mail ballot is presented as an appendix to the Secretary's Report.

The preparation of the 1956 *Directory* was announced in a leaflet enclosed with this year's dues bills. Among the problems involved in making this "who's who" type of *Directory* even more useful than the 1948 *Directory* are: what if any new features should be added to its contents; how can we get more complete coverage of economists; how get full returns from members; how increase the usefulness of data obtained. Suggestions were made which would enlarge the membership to include economists not now members and others who would benefit from membership in the American Economic Association and whose names and "who's who" description should be found in the 1956 *Directory*. The proposal that we co-operate with the Science Press (publishers of *American Men of Science*, Volume III, on the social sciences) in sending out and processing questionnaires was generally approved. Useful data available in the *Directory* but not readily accessible could be put into useful form by greatly enlarging the contents of the volume but at a prohibitive cost. Putting membership data on punch cards may also prove too costly, and if so, a modification of our addressograph or mailing list may be adopted.

The preparation of the questionnaire involves a revision of our classification of subject-matter fields. It is important that we attempt to improve this classification to justify its adoption as a generally acceptable standard. We are also including a question designed to produce a roster of names of those of our members who are actively working in the field of economic education on various levels and in its numerous aspects. This proposal received approval.

It was suggested that an announcement of the 1956 *Directory* be published in the March number of the *American Economic Review* and that it be accompanied by a membership application form. It was thought that this would stimulate further inquiry.

The transfer of the total stock of "Readings" and "Survey" volumes, bound and in sheets, from Blakiston to Irwin has been effected, and we have obtained full release from any further contingent liability to Blakiston on account of this inventory. This matter, referred to in the March, 1955, minutes, has enabled us to authorize a new sales campaign with its package deals, of which members have been urged to take advantage.

We have also been released of further liability on account of the \$8,000.00 grant from the Carnegie Corporation, this after refunding \$1,385.12 unused in producing *Survey* Volume II and remitting \$614.88 from sales to round out an even \$2,000.00, as authorized at the spring meeting of the Executive Committee. The unpaid balance was graciously written off by the Carnegie Corporation, for which an expression of appreciation was passed.

The editorial functions of the Secretary were discussed. It was suggested that further editorial assistance be employed if the Secretary deemed it necessary to meet the publication schedule of the *Papers and Proceedings*.

4. *Reports of the Treasurer, Finance Committee, and Auditor* (J. W. Bell). The cash position, operating and other income, and expenses and the status of our investment holdings were described and the report of the Auditor was circulated. These reports were accepted. No change in membership dues or subscription rates is contemplated. However, advertising rates in the *Review* are being increased as of January, 1956.

Although costs are increasing, perhaps faster than operating income, we manage to stay comfortably in the black by virtue of profits on sale of securities from our investment holdings. This can only continue so long as the bull market lasts and we pursue our present investment policy.

It was VOTED to re-elect present members of the Finance Committee and to re-appoint

our present Auditor. The Secretary was instructed to write letters of thanks and appreciation to these members, who continue to serve the Association so conscientiously and effectively.

5. *Report of the Managing Editor* (B. F. Haley). After reading his report (see below), Professor Haley submitted his nominations for vacancies on the Editorial Board. These were approved. Editorial problems and policies were discussed, particularly the feasibility of having a "book editor" or a "notes editor," as is the case in some other journals. It was pointed out that a "Section on Notes on Government Documents" could be delegated. No action was taken on these matters, but it was VOTED to approve the Editor's request that the Editorial Board be expanded by one member in 1956 and one additional member in 1957. In the meantime, more use is being made of the panel of members being used to supplement the Editorial Board in meeting the heavy burden of reviewing manuscripts. Attention was called to an innovation in the *Review*. At the request of the Executive Committee, there was published in the December number a table showing "Offerings of Fellowships, Scholarships, Grants-in-Aid and Assistantships in Economics, 1956-57." Reprints of this article are available at a nominal price from the Secretary's Office.

The budget for 1956 was presented and APPROVED. On recommendation of Professor Haley, it was VOTED to try TIAA again and apply for the same institutional treatment as Miss Merriam enjoyed previously in having the AEA match the amount paid by the employee to her retirement annuity fund, but see item 10, New Business, report of the Hamilton Committee.

6. *Reports of Standing and Special Committees.*

6a) *Committee on Research and Publications* (J. P. Miller). It was reported that the Committee is still working on the proposals made at the spring meeting and rather than submit these in unfinished form, the Committee asked that this item be laid on the table to be taken up fully at our spring meeting.

In March, Jacob Marschak (1955) resigned. No successor was appointed to fill his unexpired term.

The inventory situation and the special reduction sale of our publications is noted in the Secretary's Report.

6b) *Committee on Economic Education* (B. W. Lewis). Professor Lewis read the Committee's report (see below). It was VOTED to approve the recommendation that this be enlarged and constituted a standing committee. There was some debate concerning its functions, e.g., whether the Committee was charged with enough or too much work to do, but it is expected that the Committee will be able to crystallize ideas concerning this matter, especially after seeing the results of the item on economics in education to be included in the *Directory* questionnaire.

6c) *Committee on International Co-operation* (Gottfried Haberler); *International Economic Association* (H. S. Ellis). After listening to Professor Ellis' report, copies of which were distributed at the meeting (and published in these "Proceedings"), an expression of appreciation was VOTED, with thanks to those of our members who had helped to make such an impressive record possible. Reference was made to Schumpeter, Haberler, and Ellis.

Professor Ellis indicated that the Ford grant of \$115,000 was made for a five-year term on a tapering-off basis, and that the IEA would be able to carry on for another three years or so with its round tables, publications, program, and refresher courses but on a declining scale.

6d) *Committee on Honors and Awards* (N. S. Buchanan). Although the next awards will not be made until 1957, the Committee is at work, canvassing the field. In discussing the J. B. Clark award made at the business meeting, N. S. Buchanan suggested that the occasion be made more of a ceremony and that the Walker and Clark medals might be awarded at special meetings or at the presidential address session.

6e) *Committee on Foreign Honorary Members* (W. W. Leontief). A copy of the list of names submitted by past and present committees, together with names suggested at Executive Committee meetings, had been sent to members of our Committee prior to this meeting. This procedure was suggested by Professor Leontief in a letter to the Secretary, which contained a further observation that it was the sense of the members of his Committee that these names are now known and should constitute a panel from which the seven vacancies now existing should be filled. No action was taken. The item was tabled, to be considered at the spring meeting of 1957.

6f) *Nominating Committee*. As a preliminary step in the election process for next year's officers (see bylaws), E. E. Witte announced the appointment of Jacob Viner as Chairman of the 1956 Nominating Committee. Names of appropriate members of the new Nominating Committee were discussed. Reference was again made to the desirability of a "carry-over" member.

7. Reports from Council Representatives.

7a) *ACLS* (F. H. Knight). In the absence of Professor Knight, the Secretary submitted the draft of the *ACLS* resolution authorized at the March meeting. It was VOTED that it be spread on the minutes.

Resolution Authorized To Be Drafted at the March 26, 1955, Meeting of the Executive Committee, Held in Rye, New York, and Ordered Spread on the Minutes of the December 28, 1955, Meeting, Held in New York, New York

The many specialized disciplines in the field of humanistic scholarship are loosely organized into overlapping and partly conflicting societies, and it is the sense of the Executive Committee of the American Economic Association that there is serious need for a central body to represent common interests of all who are engaged in humanistic studies. Such a body provides an agency for intercommunication and mutual interpretation among the specialists themselves. It also serves to prevent unseemly rivalry or work at cross-purposes; it provides American scholarship with formal representation in several international or world organizations; and it serves as a unitary spokesman before the public, government agencies, and prospective sources of support for scholarly endeavor in this country.

Our Committee has full confidence in the *ACLS* as at present constituted and staffed and believes it able to perform its functions conscientiously and competently, meeting new situations as they arise and constantly seeking its own improvement. Our Committee is glad to record its feeling and conviction that our relations with the *ACLS* have been valuable for the interests and purposes which our Association strives to represent and promote. We emphasize that economics has a humanistic side or component which integrates it with history and the disciplines dealing with culture or civilization and with philosophy and ethics.

We cherish the hope that our relations with the *ACLS* may continue indefinitely into the future and we shall at all times welcome suggestions looking to fuller and more effective co-operation with it.

7b) *SSRC* (J. P. Miller). See report below.

7c) *NBER* (J. H. Williams). See report below.

8. *Annual Meetings*. The pressure of business prevented full discussion of the results of the 1955 mail ballot of our membership on the time and place of annual meetings. Therefore the schedule for 1959-61 was put on the agenda for the spring meeting. The Chairman of the Local Arrangements Committee for our 1956 meeting at Cleveland, Mr. C. A. Barker, of the Cleveland Illuminating Company, was present at the New York meetings and was able to meet our officers and get a preview of his functions and responsibilities. Mr. Barker also attended the breakfast meeting of the Conference of Secretaries of the Allied Social Science Associations, where the problems of arrangements and membership of the group were discussed.

9. *Miscellaneous Unfinished Business*. No further developments have occurred with respect to the suggestions of the Sharfman committee on the status of the profession or the implementing of the recommendations of the Bowen report (see Secretary's Report).

10. *New Business*.

10a) A committee consisting of Earl J. Hamilton, Chairman, S. E. Leland, and H. B. Arthur, appointed to investigate the Secretarial and Editorial Offices of the Association, recommended increases in the salaries of \$1,000 of the Secretary and the Managing Editor, together with provisions for supplementing retirement income from federal OASI for Miss Tait and Miss Merriam (purchase of annuity based upon payments of 7½ per cent of income, matched by the Association). The recommendation was unanimously APPROVED.

10b) It was VOTED to hold the spring meeting of the Executive Committee March 23-24 at the Westchester Country Club, Rye, New York.

The rest of the Friday meeting of the Executive Committee was devoted to the discussion of E. E. Witte's ideas for the 1956 program.

The meeting adjourned at 9:30 P.M.

ACTIVITIES AND OPERATIONS

No untoward events have marked this year's history. Operations have gone smoothly in all of our activities; e.g., meetings, publications, committee activities, relationship with other associations, councils, and so forth, here and abroad.

Annual Meetings. Attendance at the New York meetings has been large, as might be expected of a joint meeting in this metropolis. Registration of our own membership totaled 2,041 and gross paid registration of all the associations was 4,007. It was in 1949 when we had our first all-out, joint meeting, held in New York, under the present arrangements. We see no reason to change the pattern and have made commitments for independent meetings in Cleveland in 1956 and Philadelphia in 1957, with the next joint meeting in Chicago in 1958. We plan soon to make new commitments for independent meetings in 1959 and 1960 and back East with another joint meeting in 1961. It has become quite necessary in recent years to make hotel commitments far in advance because of the limited facilities and the strong competition with other organizations. To get direction in our conduct, we conducted a poll of our membership last winter. A sample of the results was reported on at the spring meeting of the Executive Committee and the full 2,500-odd ballots returned (which had been sent with dues bills) were later processed, with the following results:

1. Christmas recess, as at present, was first choice, with late August-early September second, and late January-early February and June dates third and fourth, respectively.

2. Joint meetings every third year with intervening years independent, as at present, was first choice, with joint meetings every year a moderately close second choice and independent meetings every year a poor third.

3. New York, Chicago, and Washington ranked highest almost irrespective of the year, although a greater scattering of choice was apparent in the so-called "intervening" or "independent" years. (See Exhibit III for details.)

Membership. Exhibit II at the end of this report shows the present composition of membership, with changes which have occurred during the past year. The net gain for the year of members and subscribers of 107 compares with corresponding figures of about 200 for the past several years. Our membership is still growing, but since 1951 (see table in the 1953 *Handbook*, page 179), the growth has been at a regressive rate. This may be a symptom of maturity, but we remain unconvinced that all formally trained economists are members of our Association, as pointed out in last year's report. Existing evidence seems to indicate that we have a potential of almost twice our present size. However, the suggestion made there that growth could be sustained by co-operative efforts on the part of our members failed to produce noticeable results. More has to be done.

This year a special appeal is sent to all members along with 1956 dues bills in connection with the announcement of the publication of the 1956 *Directory*. We are making an all-out effort to obtain as full coverage of economists as possible. Every person in this field should consider it a professional responsibility to belong to the American Economic Association and to fill out the questionnaire so that his vita may appear in this special-purpose, "who's who" volume.

The 1956 Directory. A revision of the 1948 *Directory* has been delayed overlong. This useful volume has become dated and contains only 3,232 descriptions of the 5,700 members circularized. Since 1948, we have added

nearly 2,000 members. The 1956 *Directory* will contain essentially the same data, but there will be a reclassification of fields of specialization and some special features. If plans for co-operating with the Science Press materialize, questionnaires will be mailed out in January, so that they can first be processed for *American Men of Science*, Volume III, Social Scientists, and then made available to us for use in our *Directory*. If these plans do not materialize, a less comprehensive, special questionnaire will be mailed to members sometime in April or May. We urge every member to take this request seriously, so that the usefulness of the *Directory* may be increased.

The three problems uppermost in our minds in connection with the 1956 *Directory* are (1) how to get more complete coverage of economists, (2) how to get full returns, and (3) how to increase usefulness of the data obtained.

Publications.

American Economic Review. For size, contents, budget, activities of the Editorial Board, and the like, see the Managing Editor's report.

The series of photographs and biographical sketches of past presidents appearing as a frontispiece to the *Review* is now up to date, and we are running the pictures of secretaries, treasurers, and editors next.

The section on "Vacancies and Applications" still seems to serve a useful purpose. The suggestion that announcements of impending retirements be added as a separate section was not approved and what sporadic instances we learn about are included in the "Notes."

The list of uses of our mailing list shown at the end of this report is larger than previous lists. We have been more liberal with our permissions authorizing the use of the list and have adopted a scale of charges, commercial and non-commercial, which has netted us some revenue (cf. 1955, \$845.65, and 1954, \$634.64). Apropos revenues, we are increasing our advertising rates some 50 per cent, beginning with the expiration of present contracts.

The *Papers and Proceedings*, May, 1955, was another large volume and produced at high cost. Plans for the 1956 volume contemplate some reduction in size, but it will still be a large volume.

We continue to revise annually our sixteen-page information booklet, which describes the purposes and activities of our Association. Requests for these booklets have been almost entirely limited to the officers and committee members. These booklets are available upon request.

The members of all standing and *ad hoc* committees are listed at the end of this report.

Committee on Research and Publications (J. P. Miller, Chairman). An accounting from our publishers, Richard D. Irwin, Inc., has been received, showing volumes printed, bound and unbound, inventory on hand, sales, and financial results. We have received no remittances this year and are reluctant to ask for any settlement until the inventory reduction sales show us more clearly where we stand.

There are no new items in preparation for the "Reading Series." Volume VII, *On Fiscal Policy*, came off the press in the summer, 1955. New titles are being considered by the Committee. A proposal for a *Survey* Volume III is also under discussion. *Survey* Volumes I and II are still moving satisfactorily. Reimbursement of a total of \$2,000.00 to the Carnegie Corporation on their

grant of \$8,000.00 has closed that account. The Corporation has graciously written off the unpaid balance. In the "Translation Series," the Walras volume is living up to expectations. Although the sales are slow and larger abroad than here, we did not expect this item to move fast.

The Blakiston inventory was taken over last fall by Richard D. Irwin, Inc., after which an inventory reduction sale was offered to our members. Although the results were gratifying, we did not succeed in reducing our stock as much as we would have liked and hence authorized another special offer in which more volumes were included, along with a series of package offers, enabling members to fill all their gaps and even to start complete sets of all series of these publications. We expect this offer to be the last of its kind and urge all to take advantage of the opportunity to adopt appropriate items as texts and collateral reading for classroom use and to satisfy all library needs.

The Committee is continuing its investigation of its proposed cumulative bibliographical index and other projects. (See report below.)

Ad Hoc Committee on Economic Education (B. W. Lewis, Chairman). Last year, the Committee on Economics in Teacher Education was continued under its present title, with instructions to prepare recommendations on the need for and the character of action properly to be taken by the Association to stimulate and help focus the interest of its members on economic education at the different levels. The Committee was not inactive but requested that its report be delayed until after the Saranac conference last August, at which time the members had a better opportunity to consider the several aspects of this problem. The report was submitted at the December meeting (see below) and the Committee was reconstituted as a standing committee of five members.

Reference is made in the minutes of the business meeting to an item on economics in education in the *Directory* questionnaire.

Committee on International Co-operation (Gottfried Haberler, Chairman); *International Economic Association* (H. S. Ellis). A full report of the history and activities of the International Economic Association as presented by Professor Ellis at the Executive Committee meeting is published in the "Proceedings."

Five numbers of the *International Economic Papers* have so far appeared. Though published in London, they are available through the Macmillan Company of New York, with privileged price to Association members. (See advertisements running currently in the *Review*.)

Committee on Honors and Awards (N. S. Buchanan, Chairman). Both the Francis A. Walker and the J. B. Clark awards are scheduled to be made in 1957. The Committee is aware of its responsibilities. Its activities in screening candidates are continuous. (See report.)

Committee on Foreign Honorary Members (W. W. Leontief, Chairman). At the Chairman's suggestion, a list of names was compiled and submitted to the members of the Executive Committee. The list consisted of names submitted by the Leontief and the Fellner committees, along with other names suggested at various Executive Committee meetings.

The Sharfman exploratory Committee on the Status of the Profession recommended the appointment of a standing committee (see *Papers and Pro-*

ceedings, 1955, pages 677-684) to act in advisory capacity to the AAUP investigating committees and to report quarterly or annually on "alleged infringements upon the academic freedom or civil liberties of economists," together with "observations and recommendations concerning the status of the profession and the Association's relation thereto." At the spring meeting, the Executive Committee authorized the appointment of such a standing committee, with a title less general than the one proposed, to operate under a scope of reference such as stated in the Sharfman report to make "recommendations as occasions arise for the performance of further functions." No committee has been appointed. No complaints have been lodged.

The *Ad Hoc* Committee on Implementation of the Bowen Report was discharged (see March, 1955, minutes), but the Chairman was requested to discuss certain items with his colleagues and to report back under this narrower scope of reference. G. L. Bach wrote that he had recanvassed the members of the *Ad Hoc* Committee and that none of them felt that the general issues raised last spring need be brought up again. He suggested the possible desirability of discussing the report of the SSRC's special William G. Madow committee on training in mathematics for social scientists.

Reports of Council Representatives. The resolution of endorsement of ACLS by the AEA, authorized at the spring meeting, was drafted by F. H. Knight and J. W. Bell and is included as part of the Executive Committee minutes. Brief reports on the activities of the ACLS, SSRC, and NBER are found in the "Proceedings."

Committees Appointed During the Year

COMMITTEE ON ECONOMIC EDUCATION	NOMINATING COMMITTEE
Ben W. Lewis, <i>Chairman</i>	Edwin G. Nourse, <i>Chairman</i>
Archibald McIsaac	Ewald T. Grether
Paul J. Strayer	William Haber
	Harlan L. McCracken
COMMITTEE ON ELECTIONS	Aryness Joy Wickens
Paul L. Morrison, <i>Chairman</i>	Harold F. Williamson
Sylvester M. Frizol	
James Washington Bell, <i>Ex Officio</i>	
COMMITTEE ON LOCAL ARRANGEMENTS	COMMITTEE ON THE SECRETARIAT
George Garvy, <i>Chairman</i>	Earl J. Hamilton, <i>Chairman</i>
	Simeon E. Leland
	Henry B. Arthur

Standing Committees and Representatives

COMMITTEE ON RESEARCH AND PUBLICATIONS	COMMITTEE ON HONORS AND AWARDS
John P. Miller, <i>Chairman</i> (1955)	Norman S. Buchanan, <i>Chairman</i>
D. Gale Johnson (1956)	(1956)
R. A. Gordon (1957)	Fritz Machlup (1956)
John H. Williams (1960)	Edward S. Mason (1958)
Max F. Millikan (1956)	W. Blair Stewart (1958)
Alexander Gerschenkron (1957)	J. Douglas Brown (1960)
James Washington Bell, <i>Ex Officio</i>	Jacob Marschak (1960)

COMMITTEE ON INTERNATIONAL CO-OPERATION	AMERICAN COUNCIL OF LEARNED SOCIETIES
Gottfried Haberler, <i>Chairman</i>	Frank H. Knight (1958)
Howard S. Ellis	
T. W. Schultz	NATIONAL BUREAU OF ECONOMIC RESEARCH
James Washington Bell	John H. Williams (1960)
INTERNATIONAL ECONOMIC ASSOCIATION REPRESENTATIVES	SOCIAL SCIENCE RESEARCH COUNCIL
Gottfried Haberler (1955)	John P. Miller (1955)
Howard S. Ellis (1955)	D. Gale Johnson (1956)
	R. A. Gordon (1957)
COMMITTEE ON FOREIGN HONORARY MEMBERS	ADVISORY COMMITTEE ON STUDY OF PARKING AND ITS RELATIONSHIP TO BUSINESS (Highway Research Board, National Research Council)
Wassily W. Leontief, <i>Chairman</i>	Homer Hoyt
P. T. Ellsworth	
Paul A. Samuelson	

Representatives of the Association on Various Occasions

MICHIGAN STATE COLLEGE, ONE HUNDREDTH ANNIVERSARY

Denzel C. Cline

COUNCIL ON CO-OPERATION IN TEACHER EDUCATION

Edwin G. Nourse

UNESCO, FIFTH NATIONAL CONFERENCE

William W. Hewett

Francis H. Bird

INAUGURATION OF UNIVERSITY AND COLLEGE PRESIDENTS

Harold Potter Rodes, Bradley University

H. F. White

Daryl Chase, Utah State Agricultural College

Vernon L. Israelsen

Clark George Kuebler, Santa Barbara College

Gordon S. Watkins

Leland Henry Carlson, Rockford College

Doris E. Pullman

Use of the Mailing List

The following were granted permission to use our mailing list to send the material indicated:

COMMITTEE FOR ECONOMIC DEVELOPMENT: To send policy statements, *Control of Federal Government Expenditures* and *Federal Tax Issues in 1955*.

CONGRESS OF INDUSTRIAL ORGANIZATIONS: To send *The Case Against "Right to Work" Laws* and *A Handbook on State and Local Taxes*.

NATIONAL ASSOCIATION OF MANUFACTURERS: To send offer of *A Tax Program for Economic Growth* and other publications at a special rate.

Review of Economics and Statistics: To advertise their publication.

Kyklos: To advertise their publication.

- Value Line Investment Survey*: To send special offer.
- American Statistical Association: To send invitation to membership.
- United Nations: To send copy of *Monthly Bulletin of Statistics* and covering letter explaining facilities offered by the *Bulletin*.
- Ford Foundation: To send annual and other reports.
- Atlantic Monthly*: To send promotional material.
- McGraw-Hill Book Company: To advertise *The Budgetary Process in the United States*.
- Kelley & Millman: To send catalogues, including announcements of John N. Keynes, *Scope and Method of Political Economy*.
- Saturday Review*: To send promotional material.
- Fund for the Advancement of Education: To send out questionnaire to members on problems and trends in graduate study.
- American Research Council: To send special offer of *Your Investments*.
- Institute of Life Insurance: To send 1955 *Life Insurance Fact Book*.
- Public Affairs Press: To send announcement of their publications.
- University of Michigan, Bureau of Business Research: To send advertisement of their publications.
- American Association for the Advancement of Science: To send information regarding their activities.
- Syracuse University Press: To send announcement of *Capital Formation and Foreign Investment in Underdeveloped Areas*.
- Commercial Credit Corporation: To send C. W. Phelps's monograph, *Using Instalment Credit*.
- Greenberg Publisher: Offer of William E. Rappard's *The Secret of American Prosperity* to members in advance of regular sale.
- Bank of America (San Francisco): To send monograph, *Significance of Military Installations for California's Economic Growth, 1930-1952*, by Sterling Brubaker, to California members.
- National Association of Manufacturers: To send catalogue of "Educational Aids for Schools and Colleges" and "Tax Program for Economic Growth."
- University of Michigan, Bureau of Business Research: To send advertisement of *Third Small Business Case Book*, by William M. Hoad.
- Public Administration Service: To announce *Public Works and Employment* (A Report of the W. E. Upjohn Institute for Community Research).
- Row, Peterson & Company: To announce *Money, Interest and Prices*, by Don Patinkin.
- French Embassy (New York City): To send issue of *French Bibliographical Digest in Economics*.
- Hill and Knowlton, Inc.: To send out a report of a client, the Natural Gas and Oil Resources Committee.

Respectfully submitted,

JAMES WASHINGTON BELL, *Secretary*

EXHIBIT I
PUBLICATION COSTS

PAPERS AND PROCEEDINGS				HANDBOOKS		
Year*	Number of Pages	Number of Copies	Cost	Number of Pages	Number of Copies	Cost
1930	222	4,300	\$ 1,353.91			
1931	308	4,300	1,919.18	88	4,200	\$ 589.54
1932	316	4,200	1,819.75			
1933	216	4,000	1,284.85	88	3,900	522.71
1934	232	3,700	1,192.91			
1935	248	4,000	1,347.88			
1936	360	4,200	2,037.90	58	4,100	454.36
1937	344	4,300	1,922.03			
1938	200	4,500	1,234.10	112	4,500	1,118.84†
1939	288	4,600	1,785.91			
1940	444	4,900	2,658.12	108	5,000	822.58
1941	479	5,200	3,294.45			
1942	548	5,400	3,909.79	208	5,500	1,775.72‡
1943	535	5,500	3,652.56			
1944	470	5,800	3,350.40			
	144	5,900	1,215.22‡			
1945	536	6,400	4,502.84			
1946	960	6,700	8,149.90	143	6,900	2,035.71
1947	781	7,700	8,140.79			
1948	591	8,500	8,701.41	345	7,700	6,948.06†
1949	537	9,500	7,844.50			
1950	650	10,100	9,864.76	41	9,200	1,163.84†
1951	816	10,400	11,965.40	18	8,300	692.63†
1952	768	10,700	13,190.83	11	8,188	620.09†
1953	612	10,900	10,935.98	187	8,400	4,416.69
1954	765	11,000	13,932.96	11	7,900	660.06†
1955	711	11,000	12,900.41	8	8,000	540.21†

* This is the year of publication and pertains to the meeting of the preceding year. The figures are published in the subsequent year.

† "Who's who" volumes; 1950—"Who's who" supplement; 1951 on—names and addresses supplement.

‡ Part of papers presented at annual meeting published as supplement to June number.

EXHIBIT II
MEMBERS AND SUBSCRIBERS

	Totals 11/30/54	Added	Removed	Gain or Loss	Totals 11/30/55
Class of membership:					
Annual.....	6,866	531*	475‡	56	6,922
Junior.....	363	272†	272*	—	363
Family.....	123	13	14	1	122
Complimentary.....	46	12	2	10	56‡
Life.....	69	7	2	5	74
Honorary.....	19	—	1	1	18
Total members.....	7,486	835	766	69	7,555
Subscribers.....	2,918	565	521	44	2,962
Complimentary.....	7	—	6	6	1
Totals.....	10,411	1,400	1,293	107	10,518

* Includes 93 junior members changed to annual.

† Includes 17 annual members changed to junior.

‡ Includes 11 who do not receive publications.

§ Resigned, 142; nonpayment, 252; died, 21; lack of address, 43; changed to junior members, 17.

EXHIBIT III

ANNUAL MEETING POLL

SUMMARY OF THE 1955 MEMBERSHIP PREFERENCE BALLOT RELATING TO
TIME, PLACE, AND TYPE OF ANNUAL MEETING

The results of the poll are shown in the following tables, which show two methods of expressing preferences: (1) the number of first, second, and third choices and (2) a preference score computed by assigning a value of three for first choice, two for second, and one for third choice.

TABLE 1
TIME OF MEETING

	NUMBER				PREFERENTIAL COUNT				PERCENTAGE RATING	
	1st	2nd	3rd	Totals	1st (×3)	2nd (×2)	3rd (×1)	Totals	Each as to 1st Choice	On Basis of Prefer- ential Score
1. Xmas recess	1,085	258	294	1,637	3,255	516	294	4,065	41.4	34
2. Jan.-Feb.	510	339	321	1,170	1,530	678	321	2,529	19.6	21
3. June	343	503	419	1,265	1,029	1,006	419	2,454	13.0	20
4. Aug.-Sept.	679	388	279	1,346	2,037	776	279	3,092	26.0	25
Totals	2,617							12,140	100.0	100

There is little doubt that the period between Christmas and New Year's is preferred by a majority of our members. Two out of every five voting rated it first choice and it has a higher preference point score than any other alternative. The preferences for Christmas time meetings is not as strong, however, as it was before our World War II experiences, when we met in Washington in late January-February for three years running, nor even as strong in 1945, when we took our last poll (550 returns) and before other allied associations decided to hold independent meetings at other periods, such as during the summer and autumn months. Perhaps the experience of other associations influenced our members to the extent of voting the August-September days a strong second choice, which again differs from our previous poll, when late January, between quarters, was only slightly less popular than the Christmas season for our meetings. The lack of information precludes a more refined expression of preferences; e.g., by geographical location of members, those attending the last or previous meetings, those who are members of other associations, and so forth. However, comments written on some of the ballots reflect the reactions one would expect. Those who travel far find the Christmas season short. Some express preference for other dates, such as Easter recess.

By a small majority, respondents seemed to be satisfied with present practices; that is, meeting in an all-out, joint session with other members of the allied social science group every third year and meeting independently in the intervening years. This pattern was

TABLE 2
TYPE OF MEETING

	NUMBER				PREFERENTIAL COUNT				PERCENTAGE RATING	
	1st	2nd	3rd	Totals	1st (×3)	2nd (×2)	3rd (×1)	Totals	Each as to 1st Choice	On Basis of Prefer- ential Score
1. Joint every 3rd year	1,150	508	65	1,723	3,450	1,016	65	4,521	50	47.5
2. Joint every year	976	301	227	1,504	2,928	602	227	3,757	43	39.0
3. Independent every year	152	181	477	810	456	362	477	1,295	7	13.5
Totals	2,278							9,573	100	100.0

initiated on an experimental basis by joint agreement in the late forties and implemented for the first time in New York in 1949. Specifically, 53 per cent of those rating each type of meeting as first choice favored present practice, 44 per cent preferred joint meetings every year, and only 3 per cent of first choices were recorded in favor of independent meetings every year. Preference scores showed 47.5 per cent favoring joint meetings every third year, 39 per cent joint meetings every year, and 13.5 per cent independent meetings every year.

Place of meeting. The answer to this question did not permit any method of scoring except to tally the cities written in on the ballots. As indicated in the summary above, scoring the total votes cast would put New York and Washington on top each year for 1959, 1960, and 1961. No weight seemed to be placed on any pattern of rotation, such as East-West or toward or away from the center of our membership population, although there did appear to be a greater scattering of choice in the so-called "independent" meeting years. Cities most mentioned were Boston, Atlantic City, Philadelphia, Cincinnati, Cleveland, Pittsburgh, Detroit, Montreal, Miami, St. Louis, Kansas City, Denver, San Francisco, and Los Angeles. Every city in which we have met before (see the 1953 *Handbook*, page 173) was indicated in the list and many new places were proposed.

Comments. As our Association continues to grow, we become limited in our meeting places, as well as with respect to dates, by transportation and hotel facilities. Already we have to take account of where other large groups meet. It seems desirable to stagger our meetings in the big cities to avoid competition with the Modern Language Association, the American Historical Association, and the AAAS. We are also limited in the distance it is safe to meet from the center of our membership population. About 70 per cent of our members (5,200/7,600) live in the New England and middle central states (see statistics on membership in the American Economic Association *Directories and Handbooks*). This percentage is large and is only slowly being reduced by a relative increase in membership in the West and South. Consequently, the great bulk of our members continues to prefer meeting within this area. If we move beyond its periphery, fewer will attend and those who stay home will be prompted to attend meetings of other allied associations or may even organize a segment within the Association to meet jointly with other associations (e.g., 1940, when we met in New Orleans, the finance and labor groups formed). Obviously those living outside the center of concentration urge us to hold occasional meetings as far west and south as facilities permit, arguing that what we miss in attendance at those meetings we make up by gaining local support. Many comment that they can afford only one meeting a year and that this meeting must serve a multiple purpose.

A compromise is clearly in order if the interests of all members are to be recognized. A standardized rotation of meetings between New York and Chicago would be simple and efficient and could be economically managed. It might satisfy a majority of our members but the interests of an important minority suggest that a variety of meeting places, spotted in different geographical centers, will bring the Association directly to local grass roots and make our influence felt there for years thereafter. With stereotyped meetings (place or type), novelty and interest are likely to lag. Variety is achieved by changing places and types, and we need to enlist the intellectual curiosity of the young as well as to prevent stereotyped monotony from sating the old. We must recognize the ubiquitous character of the subject matter of our discipline and also the "propensity to specialize" in our field. In recognizing that emphasis shifts and may swing in one direction and then another and may even result in the formation of sections or groups of interest, we must remain flexible in our organization. We may suffer loss of members whose interests are attracted by other associations. We may even lose segments splitting off to form new societies if we make futile efforts to hold all economists under one association umbrella. Such a policy might work in the United Kingdom and elsewhere, but it does not seem advisable in this country. (See 1941 report on the relation of the American Economic Association to the councils and the AAAS.) It would be foolhardy for the AEA to act so independently as to eschew the interests and wants of the members of other specialized associations in the more applied fields. Such conduct would rapidly cause the AEA to shrink into a small society of nonrealistic economists or pure theorists. If the AEA is to remain the professional association and a learned society serving all economists, we must make its membership so attractive and useful and indispensable that no formally trained economist can afford not to join and we should make its services so available and so valuable to students and nonprofessional economists that they, too, will find membership an asset even though they may belong to other associations as well. It is to this end that we have followed the policy of keeping our dues "at cost" and keeping costs minimal. Considering publications and other services received, we have succeeded so far in maintaining dues and subscription rates far below those of cognate societies.

REPORT OF THE TREASURER FOR THE YEAR ENDING NOVEMBER 30, 1955

The financial results for the past year compared with last year and five years ago are shown in the tables below. The first table shows operations and the second financial condition. These tables supplement the more detailed report of the auditor.

COMPARATIVE RESULTS OF OPERATIONS FOR 1950, 1954, AND 1955

	11/30/50	11/30/54	11/30/55
<i>Income</i>			
Membership dues.....	\$38,462	\$42,991	\$43,556
Subscriptions.....	14,273	16,838	17,387
Sales.....	2,863	2,440	2,532
Advertising.....	8,048	7,543	7,017
Sundry income.....	—	845	104
Dues and publications income.....	\$63,646	\$70,657	\$70,596
Interest.....	\$ 1,117	\$ 1,621	\$ 1,750
Dividends.....	3,860	2,962	3,003
Less custodian fees.....	131	176	218
Sales of securities (net).....	—	10,727	11,621
Investments (less fees).....	\$ 4,847	\$15,134	\$16,156
Total income.....	\$68,493	\$85,791	\$86,752
<i>Expenses</i>			
Office salaries.....	\$11,837	\$15,491	\$16,821
Other administrative expenses.....	2,610	4,479	4,538
Annual meeting.....	431	1,766	626
Executive Committee.....	1,146	1,268	1,578
Other committee expenses.....	523	342	885
Review moving expense.....	716	—	—
Administrative and operating expenses.....	\$16,402	\$19,814	\$23,196
Review printing.....	\$24,519	\$25,031	\$25,822
Papers and Proceedings printing.....	9,685	13,933	12,900
Directory printing.....	1,164	—	—
Handbook printing.....	—	1,059	540
Editorial office (Review):			
Contributors.....	1,573	3,015	2,422
Editorial and clerical salaries.....	7,475	9,953	10,431
Other expenses (net).....	563	78	62
Publications.....	\$44,979	\$53,069	\$52,053
Total expenses.....	\$61,381	\$72,883	\$75,249
Net operating income or loss.....	\$ 7,112	\$12,908	\$11,503
Appropriations.....	2,000	985	—
Net income or deficit.....	\$ 5,112	\$11,923	\$11,503

Financial Operations. In the table showing income and expenses, we group income from all sources under one heading and do likewise with expenses. This differs from the treatment in the Auditor's Report, where operation and publication results are separated.

Total income from all sources amounted to \$86,752 compared with \$85,791 for 1954, an increase of \$961. Compared with income five years ago, the increases reflect some \$7,000 in growth factors and the balance in profit on sales of securities, a nonrecurring item. Expenses, on the other hand, show a steady increase. Both administrative and printing costs are rising; e.g., office salaries and other administrative expenses, and editorial and clerical salaries are now about \$10,000 higher than they were five years ago, and *American Economic Review* and *Papers and Proceedings* printing costs are about \$4,500 higher. The explanation is apparent: we have found it necessary to employ more assistants and office help has become more expensive and good help has become more difficult to get and to hold; printing costs have risen an average of 50 per cent since 1949 and we publish more pages in bigger editions. Our net income is holding up principally because we have been taking profits on sales of securities in a rising market.

COMPARATIVE FINANCIAL CONDITION FOR 1950, 1954, AND 1955

	11/30/50	11/30/54	11/30/55
<i>Assets</i>			
Cash on deposit and on hand.....	\$ 16,035	\$ 12,041	\$ 6,891
Receivables (net).....	3,144	21,479	3,953
Prepaid expenses and inventories.....	452	644	1,082
Furniture and fixtures (net).....	937	1,639	1,718
Investments at cost:			
Bonds.....	33,109	61,519	75,370
Stocks.....	51,979	38,082	59,395
Total assets.....	\$105,655	\$135,404	\$148,409
<i>Liabilities and Funds</i>			
Accounts payable.....	\$ 9,100	\$ 7,467	\$ 8,604
Deferred income.....	18,540	8,597	8,418
Membership extension fund.....	966	491	369
Fund for proposed secretariat.....	35	—	—
Sundry.....	—	10	38
Fund for Committee on Research and Publications.....	—	944	882
Committee appropriations (not expended).....	3,208	—	—
Life memberships.....	5,200	7,725	7,900
Total liabilities and funds.....	\$ 37,049	\$ 25,234	\$ 26,211
<i>Surplus</i>			
Balance at beginning of period.....	\$ 63,269	\$ 98,246	\$110,170
Transfers from life memberships.....	225	—	525
Net income or loss for period.....	5,112	11,924	11,503
Unappropriated surplus.....	\$ 68,606	\$110,170	\$122,198
Total footings.....	\$105,655	\$135,404	\$148,409

INVESTMENT PORTFOLIO

Year	At Par	Cost			Market
	Bonds	Bonds	Stocks	Total	Stocks and Bonds
1925	\$25,000	\$24,661.75		\$ 24,661.75	
1930	31,000	32,439.48		32,439.48	
1933	33,500	32,962.48	\$ 3,954.23	36,916.71	\$ 31,522.50
1935	16,000	15,280.48	28,114.50	43,394.98	50,338.72
1940	25,000	22,519.80	41,155.95	63,675.75	60,553.88
1942	27,000	24,651.12	41,556.06	66,207.18	58,211.88
1945	40,000	36,705.95	44,955.81	81,661.76	103,574.76
1948	35,000	33,108.63	48,624.14	81,732.77	84,841.91
1950	35,000	33,108.63	51,978.53	85,087.16	104,177.27
1951	43,000	43,340.16	49,764.51	93,104.67	117,316.75
1952	42,000	42,312.67	58,934.00	101,246.67	130,836.02
1953	68,000	68,308.05	46,458.90	114,766.95	134,562.38
1954	61,000	61,518.63	38,082.20	99,600.83	132,280.63
1955	75,000	75,370.10	59,394.86	134,764.96	166,772.60

RETURN ON INVESTMENTS

Year	Bonds	Stocks	Total	Rate of Return on Cost
1925	\$1,350.00		\$1,350.00*	
1930	1,695.21		1,695.21	5.22%
1933	1,679.49	\$ 108.57	1,788.06	4.84
1935	1,022.96	680.70	1,703.66	3.92
1940	1,037.56	2,182.46	3,220.02	5.06
1942	1,306.49	2,186.17	3,492.66	5.28
1945	1,479.99	2,488.85	3,968.84	4.71
1948	1,194.85	2,944.31	4,139.16	5.06
1950	1,117.50	3,860.39	4,977.89	5.85
1951	1,026.30	4,607.67	5,633.97	6.05
1952	1,117.84	3,681.53	4,799.37	4.75
1953	1,435.12	3,587.45	5,022.59	4.36
1954	1,621.06	2,961.75	4,582.81	4.58
1955	1,750.16	3,002.50	4,752.66	3.53

* Estimated income for year.

Financial Condition. The balance sheet items in the above comparative table reflect a sound financial condition and continued growth in resources. Cash and receivables are normally low at this time of the year, before dues bills are sent out. Last year's abnormally liquid condition was accounted for by the temporarily uninvested funds derived from the sale of securities prior to report date. Cash on hand is adequate to pay current obligations and receivables will pick up around the turn of the year. On the liability side, "accounts payable" represents the estimated cost of the December number of the *American Economic Review* and reprints and other miscellaneous items; "deferred income" represents prepaid subscriptions and dues. The only appropriation at present outstanding is for the Committee on Research and Publications. We have, however, made commitments of \$500 in the case of

the Walras translation if sales within a three-year period fail to produce royalties to the amount of \$2,000, and the amount of \$1,200 (600 copies) in underwriting with the Royal Economic Society the sale of the UNESCO-International Economic Association volume, *Teaching of Economics*.

After deducting liabilities and appropriations from total resources, we have a net worth or surplus totaling \$110,170. Adding net income for the year and life membership transfers gives us an unappropriated surplus of \$122,198. Since the profit on sale of securities practically accounts for the amount of net income, it becomes apparent that we have practically reached a break-even point in operations at present income and cost bases. Increased costs or expenses are an almost assured prospect, whereas we cannot safely count on a continuous bull market in investments. It seems obvious, therefore, that we must look for new revenue or raise our \$6.00 dues if we wish to maintain services on the present scale. However, we intend to exhaust all other means of keeping our budget balanced before raising dues. Most of our members belong to two or more allied social science associations. We do not want high dues to be an obstacle in maintaining their membership in the AEA while belonging at the same time to other more specialized associations.

The above tables show for selected dates changes in our investment holdings as well as the rate of return on these investments.

Respectfully submitted,

JAMES WASHINGTON BELL, *Treasurer*

REPORT OF THE FINANCE COMMITTEE

December 2, 1955

*Executive Committee,
American Economic Association,
Evanston, Illinois.*

GENTLEMEN:

The accompanying tables show the list of investment holdings of the Association as of the end of the fiscal year, November 30, 1955, and the changes made since our last report. Cost and approximate market value figures are

LIST OF SECURITIES HELD BY THE ASSOCIATION

Stocks

Number of Shares of Common Stock	Issue	Cost	Approximate Market Value 11/30/55
100	Aluminum Co. of America.....	\$ 2,133.08	\$ 7,750.00
200	British Petroleum.....	3,139.76	3,025.00
200	Central and South West Corp.....	2,801.69	6,950.00
200	Columbia Broadcasting System.....	5,758.85	5,135.00
100	Eastern Air Lines.....	2,774.10	5,025.00
300	Gulf Interstate Gas Co. (pfd).....	6,240.00	6,325.00
100	Gulf Oil Corp.....	2,684.99	8,600.00
220	Household Finance Corp.....	4,190.23	5,967.50
200	Houston Lighting & Power Co.....	1,961.53	9,050.00
100	Monsanto Chemical Co.....	4,625.44	4,687.50
66	Peoples Gas Light & Coke Co.....	8,306.15	10,494.00
100	Philips Incandescent Lamp Works.....	3,900.96	4,700.00
100	Schering Corp.....	3,356.98	4,400.00
110	Socony Vacuum Oil Co.....	3,322.44	6,380.00
200	Sperry Rand Corp.....	4,198.66	5,100.00
		\$ 59,394.86	\$ 93,589.00

Bonds

Par Amount	Issue	Cost	Approximate Market Value 11/30/55
\$20,000	U.S. Treasury Notes, 1½%, Series "A-1959," due 2/15/59.....	\$ 20,003.00	\$ 19,520.00
5,000	U.S. Treasury Bonds, 2½%, due 11/15/61.....	5,000.00	4,862.00
8,000	U.S. Treasury Bonds, 2½%, Series "B," due 1975/80.....	8,000.00	7,872.00
7,000	U.S. Treasury Bonds, 2½%, due 12/15/72-67...	7,275.63	6,599.60
15,000	U.S. Treasury Bonds, 2½%, due 12/15/58.....	15,000.00	14,880.00
20,000	U.S. Treasury Bonds, 2½%, due 8/15/63.....	20,091.47	19,450.00
	Bonds.....	\$ 75,370.10	\$ 73,183.60
	Stocks.....	59,394.86	93,589.00
	Total.....	\$134,764.96	\$166,772.60

shown. The cost figures for Household Finance and for Philips Incandescent Lamp Works have been adjusted to reflect changes in equity effected by the sale of rights. As in previous evaluations, the \$8,000 U.S. Treasury 2 3/4's have been valued as if converted into U.S. Treasury Notes due October 1, 1957.

Comparative figures for stock and bond holdings this year and last are shown below.

	1954				1955			
	Cost	%	Market	%	Cost	%	Market	%
Stocks....	\$38,082	38	\$ 70,766	53	\$ 59,395	44	\$ 93,589	56
Bonds.....	61,519	62	61,514	47	75,370	56	73,184	44
Total..	\$99,601	100	\$132,280	100	\$134,765	100	\$166,773	100

For the past couple of years we have followed the policy of taking profit on stocks in a rising market and investing in bonds, so as to keep somewhere near the 50-50 ratio. On the basis of cost, our bonds are on a 55-45 relation-

SUMMARY OF SECURITIES SOLD OR MATURED
Year Ended November 30, 1955

Shares or Par Value	Issue	Cost	Selling Price	Gain or Loss
<i>Sold</i>				
100	Kroger Grocery and Baking Co....	\$ 1,851.74	\$ 3,967.00	\$ 2,115.26
115	Houston Lighting and Power Co....	1,127.00	4,597.50	3,470.50
40	Gulf Oil Co.....	1,073.60	3,434.00	2,360.40
100	Continental Can Corp.....	3,714.55	7,564.53	3,849.98
50	Carrier Corp.....	2,990.61	2,509.10	481.51
100	Philips Incandescent Lamp Works rights.....	1,314.22	1,615.47	301.25
220	Household Finance Corp. rights....	32.09	37.40	5.31
	Total.....	\$12,103.81	\$23,725.00	\$11,621.19
<i>Bought</i>				
64/100	Gulf Oil Co.....	\$ 41.60		
6	Peoples Gas Light and Coke Co....	840.00		
100	Remington Rand Corp.....	4,198.66*		
200	Columbia Broadcasting System....	5,758.85		
100	Philips Incandescent Lamp Works.	5,215.18		
200	British Petroleum Co., Ltd.....	3,139.76		
100	Schering Corp.....	3,356.98		
100	Monsanto Chemical Co.....	4,625.44		
300	Gulf Interstate Gas Co.....	†		
\$20,000	U.S. Treasury Bonds, 2½%, due 8/15/63.....	20,091.47		
	Total.....	\$47,267.94		

* The 100 shares of Remington Rand bought on March 25, 1955, for \$4,198.66 were exchanged for 200 shares of Sperry Rand on August 2, 1955.

† The \$6,000.00 Gulf Interstate Gas Co. notes were exchanged for 300 shares of 6% cumulative preferred stock on December 1, 1954.

ship, but with the market on governments being weak and on stocks being strong, the relationship marketwise reverses the ratio. This policy serves to keep us in a strong defensive position should any decline occur in the market, but it has resulted in a lower rate of return on our investments.

In the table on the preceding page are shown the securities which were sold and bought during the year. The proceeds from securities sold, plus the uninvested funds carried over from sales made after the fiscal year-end in 1954 (see last year's report), provided the funds necessary to purchase the above list. In other words, no new money has been added.

Respectfully submitted,

ROY C. OSGOOD, *Chairman*

C. WELLS FARNHAM

JAMES WASHINGTON BELL

REPORT OF THE AUDITOR

December 15, 1955

*Executive Committee
American Economic Association
Evanston, Illinois*

DEAR SIRs:

In accordance with instructions we have examined the accounts and related records of the American Economic Association for the year ended November 30, 1955, and now submit our report thereon together with the following exhibits:

Statement of Financial Position—November 30, 1955	Exhibit 1
Statement of Income and Expense for Year Ended November 30, 1955	Exhibit 2

Results from Operations

Net income for the year ended November 30, 1955, was \$11,503 compared with net income of \$11,924 for the year ended November 30, 1954, as shown in the following summary:

Particulars	Year Ended November 30		Increase Decrease
	1954	1955	
Income:			
Dues.....	\$42,992	\$43,556	\$ 564
Interest and dividends (net).....	4,406	4,535	129
Profit on sale of securities (net).....	10,727	11,621	894
Miscellaneous income.....	845	104	741
Total income.....	<u>\$58,970</u>	<u>\$59,816</u>	<u>\$ 846</u>
Expense:			
Publication expense.....	\$53,068	\$52,053	\$1,015
Less—Publication income.....	26,821	26,936	115
Net Publication expense.....	<u>\$26,247</u>	<u>\$25,117</u>	<u>\$1,130</u>
Administrative and other operating expenses.....	19,814	23,196	3,382
Total expense.....	<u>\$46,061</u>	<u>\$48,313</u>	<u>\$2,252</u>
	<u>\$12,909</u>	<u>\$11,503</u>	<u>\$1,406</u>
Less—Appropriation.....	985	—	985
Net income.....	<u><u>\$11,924</u></u>	<u><u>\$11,503</u></u>	<u><u>\$ 421</u></u>

The increase in dues reflects the increase in membership reported by the Secretary:

Classification	Number of Members at November 30	
	1954	1955
Regular.....	6,866	6,922
Junior.....	363	363
Family.....	123	122
Life.....	69	74
Honorary.....	19	18
Complimentary.....	46	56
Total.....	<u>7,486</u>	<u>7,555</u>

Interest on bonds owned was accounted for in accordance with stated rates; dividends received on stocks were compared with amounts reported in published records of dividends paid.

Net publication expense, as shown in the following summary, amounted to \$25,117 for the current year compared with \$26,247 for the preceding year:

Particulars	Year Ended November 30		Budgetary Estimates for Year 1955
	1954	1955	
Expenses:			
Printing of—			
<i>Review</i>	\$25,031	\$25,822	\$25,500
<i>Handbook</i>	1,059	540	—
<i>Proceedings</i>	13,933	12,900	—
Editor's honorarium.....	3,500	3,500	3,500
Payments to contributors.....	3,015	2,422	2,500
Editorial clerical salaries.....	6,452	6,931	6,600
Editorial supplies and expense.....	713	784	600
Sundry publication expense.....	635	846	—
Total expenses.....	<u>\$53,068</u>	<u>\$52,053</u>	
Less—Income:			
Subscriptions, other than members.....	\$16,838	\$17,387	
Sales of copies.....	2,440	2,532	
Advertising.....	7,543	7,017	
Total income.....	<u>\$26,821</u>	<u>\$26,936</u>	
Net publication expense.....	<u>\$26,247</u>	<u>\$25,117</u>	

The decrease of \$1,130 in net publication expense (from \$26,247 to \$25,117) represents:

Increase in subscriptions.....	\$ 549
Increase in copy sales.....	92
Decrease in expenses (net).....	<u>1,015</u>
	\$1,656
Less—Decrease in advertising.....	<u>526</u>
Net decrease.....	<u>\$1,130</u>

Billings for the December, 1955, issue of the *Review* and reprints had not been made by the publishers at the time of our examination. The publishers estimated the cost of *Review* printing and reprints at \$7,100; this amount is included in the year's expenses.

Financial Position

Condensed statements of financial position of the Association at November 30, 1954 and 1955 are compared below:

Assets	November 30		Increase Decrease
	1954	1955	
Cash on deposit and on hand.....	\$ 12,041	\$ 6,891	\$ 5,150
Receivables (net).....	21,479	3,953	17,526
Prepaid expenses.....	644	1,082	438
Furniture and fixtures (net).....	1,640	1,718	78
Investments at cost—			
Bonds.....	61,519	75,370	13,851
Stocks.....	38,082	59,395	21,313
	<u>\$135,405</u>	<u>\$148,409</u>	<u>\$13,004</u>
Liabilities, Funds and Surplus			
Accounts payable.....	\$ 7,467	\$ 8,604	\$ 1,137
Deferred income.....	8,597	8,418	179
Sundry fund.....	10	38	28
Membership extension fund.....	491	369	122
Fund for committee on publication and research.....	945	882	63
Life memberships.....	7,725	7,900	175
Surplus—			
Balance at beginning of year.....	98,246	110,170	11,924
Net income for year.....	11,924	11,503	421
Transfers from life membership.....	—	525	525
	<u>\$135,405</u>	<u>\$148,409</u>	<u>\$13,004</u>

Cash on deposit was satisfactorily reconciled with balances confirmed directly to us by the depositories.

The receivables of the Association were not confirmed by correspondence with debtors. Based upon the Association's past experience the reserve for doubtful accounts appears to be adequate to cover normal losses.

Changes in the investment account were verified by the examination of broker's invoices and other supporting data. Securities held at November 30, 1955, were confirmed directly to us by the State Bank and Trust Company of Evanston, Illinois, custodian for the Association.

Insofar as we were able to ascertain, all liabilities of the Association at November 30, 1955, are reflected in the accompanying statement of financial position, and the Secretary has represented to us that to the best of his knowledge all liabilities are disclosed.

A summary of the transactions in the various funds is presented below:

Particulars	Membership Extension Fund	Committee on Publication and Research	Sundry Fund
Balance November 30, 1954.....	\$490.76	\$944.74	\$ 9.70
Changes during the year—			
Received.....	—	—	28.03
Expended.....	121.40	63.15	—
Balance November 30, 1955.....	<u>\$369.36</u>	<u>\$881.59</u>	<u>\$37.73</u>

We express our appreciation of the courtesies and co-operation extended to our representatives during the course of the examination.

Very truly yours,

DAVID HIMMELBLAU & Co.
Certified Public Accountants

EXHIBIT 1

AMERICAN ECONOMIC ASSOCIATION
STATEMENT OF FINANCIAL POSITION—NOVEMBER 30, 1955

<i>Assets</i>		<i>Liabilities, Funds and Surplus</i>	
CURRENT ASSETS:		CURRENT LIABILITIES:	
Cash on deposit and on hand—		Accounts payable.....	\$ 8,203.65
State Bank and Trust Company,		Due to International Economic Association.....	400.00
Evanston.....	\$ 5,474.95		\$ 8,603.65
National Bank of Commerce of Chicago	1,365.91		
Petty cash.....	50.00		
	<u>\$ 6,890.86</u>		
RECEIVABLES—		DEFERRED INCOME:	
Review advertising.....	\$ 2,457.45	Prepaid subscriptions.....	\$ 7,030.93
Accrued interest and dividends.....	619.76	Prepaid dues.....	1,387.20
Publication sales.....	577.44		8,418.13
Membership dues.....	694.25		
	<u>\$ 4,348.90</u>		
Total receivables.....	395.66		
Less—Reserve for doubtful accounts..			
	<u>\$ 3,953.24</u>		
INVENTORY OF STAMPS AND ENVELOPES.		FUNDS:	
Unexpired insurance.....		Membership extension.....	\$ 369.36
		Committee on Publication and Research	881.59
		Sundry.....	37.73
			<u>1,288.68</u>
Total current assets.....	<u>\$ 11,925.54</u>		
INVESTMENTS (at cost):		LIFE MEMBERSHIPS AND SURPLUS:	
Bonds.....	\$75,370.10	Life memberships.....	\$ 7,900.00
Stocks.....	59,394.86	Unappropriated surplus—	
		Balance November 30,	
		1954.....	\$110,170.36
		Life membership trans-	
		fers.....	525.00
			<u>\$110,695.36</u>
		Net income for year	
		ended November 30,	
		1955 (Exhibit 2)....	11,502.98
			<u>122,198.34</u>
FURNITURE AND FIXTURES			
(less accumulated depreciation).....	1,718.30	Total liabilities, funds and surplus	<u>\$148,408.80</u>
	<u>\$148,408.80</u>		
Total assets.....	<u>\$148,408.80</u>		

AUDITORS' OPINION

*Executive Committee
American Economic Association:*

Our examination of the accompanying financial statements present fairly the financial position of American Economic Association at November 30, 1955 and the results of its operations for the period then ended that, in conformity with generally accepted accounting principles applied on a basis consistent with that of the preceding year.

Our examination was made in accordance with generally accepted auditing standards and included such tests of the accounting records and other auditing procedures as we considered necessary in the circumstances.

Chicago, Illinois
December 15, 1955

DAVID HUMMELSLAY & Co.
Certified Public Accountants

EXHIBIT 2

AMERICAN ECONOMIC ASSOCIATION
STATEMENT OF INCOME AND EXPENSE FOR THE YEAR ENDED
NOVEMBER 30, 1955

Particulars	Amount	
INCOME:		
Dues—		
Regular, junior and family members.....	\$41,661.80	
Subscribing and contributing members.....	1,894.00	\$43,555.80
Investments—		
Interest on bonds.....	\$ 1,750.16	
Dividends.....	3,002.50	
	\$ 4,752.66	
Less—Custodian fees.....	217.87	4,534.79
Gain on sale of securities (net).....	11,621.19	16,155.98
Miscellaneous income (net).....		104.02
Total income.....		\$59,815.80
EXPENSE:		
Administrative and other operating expenses —		
Secretary's salary.....	\$ 3,500.00	
Office salaries.....	13,320.50	
Annual meeting (net).....	626.06	
Executive Committee expenses.....	1,577.58	
Other committee expenses.....	885.07	
Postage expense.....	1,118.30	
Stationery and supplies.....	1,042.88	
Insurance.....	176.68	
Provision and depreciation.....	198.59	
Telephone and telegraph.....	358.78	
Dues and expenses—		
American Council of Learned Societies.....	176.91	
International Economic Association.....	400.00	
Exchange on checks.....	3.13	
Social security taxes.....	357.40	
Miscellaneous expense (net).....	705.80	\$23,195.56
Publication expenses—		
Printing of:		
Review.....	\$25,822.13	
Handbook supplement.....	540.21	
Proceedings.....	12,900.41	
Editors honorarium.....	3,500.00	
Payments to contributors.....	2,422.00	
Editorial clerical salaries.....	6,930.90	
Editorial supplies and expense.....	783.48	
Sundry publishing expenses (net).....	845.65	
Total publishing expense.....	\$52,053.48	
Less—Publication income:		
Subscriptions, other than mem-		
bers.....	\$17,387.22	
Sales of copies.....	2,531.80	
Advertising.....	7,017.20	25,117.26
Total expense.....		48,312.82
NET INCOME FOR YEAR ENDED NOVEMBER 30, 1955 (Exhibit 1).....		\$11,502.98

REPORT OF THE MANAGING EDITOR FOR THE YEAR ENDING DECEMBER, 1955

The flow of manuscripts submitted to the *Review* has continued at a high level during the past year—even a little higher, in fact, than in preceding years. It is my impression that the quality of the papers submitted has continued, on the whole, to be good. Certainly it has been necessary to turn away quite a few papers that I would have been happy to accept if space had been available. As usual, many of these have found other publication outlets. The percentage of manuscripts published in 1955 to the number submitted in that year was about 17, as compared with 18.8 for 1954. Table 1 gives comparative figures with regard to manuscripts submitted for the past six years.

TABLE 1
MANUSCRIPTS SUBMITTED, 1950-55

	1955	1954	1953	1952	1951	1950
Manuscripts received	245	231	234	190	222	197
Articles	149	160	122	133	157	156
Communications	96	71	112	57	65	41
Percentage of articles accepted	17	18.8	15	21	19	19

Table 2 provides the break-down of the volume's contents as between articles, review articles, communications, book reviews, etc. The amount of space devoted to leading articles has continued at about the level of previous years. It should be noted that the comparison with 1953 is a little misleading, since the space devoted to leading articles in that year was abnormally low as a result of the high allocation of space to comments on earlier articles. In

TABLE 2
SUMMARY OF CONTENTS, 1953-55

	1955		1954		1953	
	No.	Pages	No.	Pages	No.	Pages
Leading articles	21	446	27	448	14	345
Review articles	6	67	3	33	3	44
Communications:						
Original	5	31	6	37	5	20
Comments and replies	9	34	11	42	28	112
Book reviews	173	311	159	301	161	339
Memorials	—	—	1	2	1	2
Classified list of new books	—	52	—	57	—	59
Classified list of periodical articles	—	56	—	53	—	54
Classified list of dissertations	—	25	—	27	—	32
Notes	—	39	—	38	—	34
Graduate offerings	—	12	—	—	—	—
		1,073*		1,038*		1,041*

* Plus some blank pages.

1955 we devoted about twice the normal amount of space to review articles. This, however, is not to be interpreted as in any sense a change in editorial policy. It simply happened that some especially attractive occasions for review articles proved to be too tempting to resist. At the same time the amount of space devoted to regular book reviews was not contracted, since it was desired to achieve somewhat better review coverage of new books, particularly foreign books, than has sometimes been possible in the past. Taking review articles and the regular books reviews together there were 179 reviews; and about 35 per cent of the volume pages has been devoted to this important function.

In my report last year I pointed out the desirability of providing somewhat more adequate review coverage of foreign books in particular, and sought the informal consent of the Executive Committee to a moderate increase in the number of pages in the 1955 volume (I suggested about 30 pages to make possible such expanded coverage). This is one reason that the current volume has run to 1,073 pages, as against 1,038 in 1954. The space devoted to book reviews and review articles has been 378 in 1955 as against 334 in 1954. Exclusive of British and Canadian books and of foreign books reprinted in the United States, we have carried reviews of 40 foreign books in 1955 as compared with 22 in 1954; and these reviews of foreign books aggregated 83 pages this past year, as against 40 in 1954. It has been something of a problem to find reviewers for these books in particular, but in my opinion the results have been worth the effort. I hope that the Executive Committee will be willing to have me continue to devote about the same amount of additional space to review coverage of foreign books in 1956.

Table 3 summarizes the subject-matter distribution of articles, review articles, and communications. As usual, there has been a concentration in general economic theory. Other areas in which more than one article appeared were economic development, public finance, international economics and labor eco-

TABLE 3
SUBJECT-MATTER DISTRIBUTION: ARTICLES AND COMMUNICATIONS 1955

	Articles	Review Articles	Original Communications	Comments and Replies
General economic theory	4	3	2	2
Economic development	3	—	—	—
National economics	1	—	—	—
Input-output	1	1	—	—
Business fluctuations	1	—	1	—
Money and banking	1	—	—	—
Public finance	2	—	—	—
International economics	2	—	—	4
Industrial organization	1	—	—	—
Transportation	—	1	—	—
Agricultural economics	1	—	—	—
Labor economics	4	1	1	3
The elementary course	—	—	1	—
	21	6	5	9

TABLE 4
ACTUAL AND BUDGETED EXPENDITURES

	Budget 1955	Actual 1955	Actual 1954
Printing and mailing.....	\$25,500	\$26,545.37*	\$25,497.60†
Editor's salary.....	3,500	3,500.00	3,500.00
Editorial assistance.....	6,600	6,881.65	6,602.76
Supplies.....	600	763.22	611.37
Contributors.....	2,500	2,422.00	2,488.50
	\$38,700	\$40,112.24	\$38,700.23

* Printing estimate December number—\$7,100.

† Corrected from 1954 Annual Report.

nomics. It is interesting to note that three articles appeared during the year in the general field of the economics of location. A leading article and a review article in the field of input-output analysis are also worthy of special mention; both of these are decidedly useful articles, for the nonspecialist economist who would like to understand better what is going on in this area as well as for the specialist in input-output analysis.

An innovation in the *Review* this past year was the publication of a table showing "Offerings of Fellowships, Scholarships, Grants-in-Aid and Assistantships in Economics, 1956-57," as requested by the Executive Committee. The table appeared in the December issue, which was the latest issue in which it might appear and still be useful for potential candidates. It was accordingly necessary to request institutions to provide the information with regard to their offerings in early October, 1955. Many institutions found it difficult to estimate their prospective grants at all accurately as early as this. Also, quite a few institutions could not determine offerings of fellowships and scholarships on a departmental basis in advance, since the economics candidates have to compete for general university offerings with the candidates in other subjects. For these reasons I have some doubt as to the usefulness of the table in providing an accurate forecast of the offerings of different institutions. It does, however, give a good picture of the approximate number and value of available means of assistance to graduate students in economics. Altogether, 122 colleges and universities offering graduate work in economics and 8 research institutes and foundations were asked to provide the necessary information. Replies were received from 96.

TABLE 5
COPIES PRINTED, SIZE AND COST OF PRINTING

	Copies Printed	Pages		Cost Including Reprints
		Net	Gross	
March.....	11,000	253	304	\$ 6,317.80
June.....	11,000	259	304	6,301.88
September.....	11,000	288	328	6,825.69
December.....	11,000	273	336	7,100.00 (estimated)
		1,073	1,272	\$26,545.37

Table 4 presents the actual expenditures in 1955 in comparison with the estimated budget and with actual expenditures in 1954. Actual expenditures exceeded budgeted expenditures by about \$1,400. Approximately \$1,000 of this amount is accounted for by higher printing costs in 1955 than in 1954, and this in turn is to be explained by: (1) a larger volume in 1955 (gross pages, including advertising, 1,272 as against 1,232 in 1954), (2) unusually heavy printing costs for the December issue because of the fact that the article on regional input-output analysis had to be set in monotype, and partly because of the long table giving graduate fellowships, scholarships, and assistantships. Table 5 gives the detailed information about printing costs by quarters.

The other two expenditure items that have increased are editorial assistance and supplies. In the former case, the increase corresponds almost exactly to the cost of preparing the summary table on offerings of scholarships, fellowships, etc. In the case of supplies, the increase reflects partly some rise in prices and partly the increased volume of operations. For example, more manuscripts handled and more book reviews assigned mean proportionately more correspondence, postage, and other supplies.

The estimated costs for the coming year are presented in Table 6, based on a volume of 1,260 pages, including advertising (or about 1,060 pages of text), on the assumption that the Executive Committee approves continuation of the moderately expanded allocation of space to foreign book reviews.

TABLE 6
RECOMMENDED BUDGET FOR 1956

Printing (including paper, postage, reprints, etc. connected with publication).....	\$26,300
Editor's salary.....	3,500
Editorial assistance.....	6,800
Supplies.....	765
Contributors.....	2,500
	<hr/>
	\$39,865

During the year I have had the advice and assistance of the following foreign correspondents—who have been particularly helpful with regard to the selection of foreign books for listing and review:

Alexander Kafka (Brazil)	Victor L. Urquidí (Mexico)
Jean-Marcel Jeanneney (France)	P. J. Verdoorn (Netherlands)
Erich Schneider (Germany)	Erik Lindahl (Sweden)
Giovanni Demaria (Italy)	

I also would like to express my gratitude, and the gratitude of the Association, to the two retiring members of the Board of Editors, Ragnar Nurkse and Raymond F. Mikesell, whose advice and discriminating judgment have been tirelessly available to me for the past three years. With the approval of the Executive Committee, the Board is to be expanded by one member in 1956 and by one additional member in 1957; and for the three-year appointments beginning in 1956 I should like to nominate G. L. Bach, C. P. Kindleberger, and W. S. Salant.

During the year I have frequently sought the aid of members of the profession in addition to the hard-working members of the Editorial Board—partly to relieve the latter of some of the excessively heavy burden they have been carrying and partly to obtain advice of specialists in particular areas not represented on the Editorial Board. The following have assisted us in this way:

M. Abramovitz	J. Dunlop	K. E. Poole
A. A. Alchian	P. T. Ellsworth	M. W. Reder
K. Arrow	R. Eisner	R. Roosa
G. L. Bach	S. Enke	W. S. Salant
J. S. Bain	W. Fellner	T. C. Schelling
W. J. Baumol	A. Gerschenkron	T. Scitovsky
R. L. Bishop	K. Gordon	L. H. Seltzer
K. E. Boulding	R. A. Gordon	W. F. Stolper
H. R. Bowen	A. G. Hart	L. Tarshis
O. H. Brownlee	M. Hastay	H. Taylor
N. S. Buchanan	B. F. Hoselitz	G. Tintner
L. V. Chandler	H. S. Houthakker	C. R. Whittlesey
E. W. Clemens	D. G. Johnson	H. F. Williamson
E. D. Domar	S. Peterson	R. A. Young
R. Dorfman		

Respectfully submitted,

BERNARD F. HALEY, *Managing Editor*

REPORT OF THE COMMITTEE ON RESEARCH AND PUBLICATIONS

Two of the long-standing projects of the Committee came to fruition during the last year. In the late fall of 1954 the translation by William Jaffé of *Elements of Pure Economics* by Léon Walras was published in co-operation with the Royal Economic Society. This translation has received uniformly excellent reviews, and sales to date indicate considerable interest in the project. The year also saw the publication of *Readings in Fiscal Policy*, by Arthur Smithies and Keith Butters. Sales of these volumes and of previous publications sponsored by the Committee have continued quite satisfactory.

Progress was made on two other projects sponsored by the Committee. The first draft of a review article by Donald Irwin on economic bibliographies was received at the end of the year. This is now under consideration by the Committee and it is hoped that it will be published during the coming year. The project sponsored by the Committee for a cumulative index of the *American Economic Review* since 1911 has been temporarily halted in order that the Committee might consider the desirability of expanding the project into a cumulative index of ten or a dozen English-speaking journals.

The Committee has several other projects under consideration. It is exploring the possibilities of volumes of readings in the fields of taxation, economic development, and industrial organization.

The Committee hopes to continue its translation series and is now exploring the possibilities of the translation of Vilfredo Pareto's *Manuale di Economia Politica*. Finally, the Committee is exploring the possibilities of a volume on "Economics in Action" which will explore the use of economics in various policy-making and action organizations, including government and business.

Respectfully submitted,

JOHN PERRY MILLER, *Chairman*

REPORT OF THE *AD HOC* COMMITTEE ON ECONOMIC EDUCATION

A year ago this Committee called attention to the growing interest in the subject of economics in the schools and in adult and general education, and suggested some of the problems for the economics profession and for the Association raised by this development. At that time the Committee was re-constituted, and as an *ad hoc* Committee on Economic Education was asked to explore and bring findings and recommendations to the Executive Committee "on the need for and the character of action properly to be taken by the Association to stimulate and to help to focus the interest of its members in the area of economic education; that is, in the schools (including teacher training), economics in business education (including 'business' in economic education), and economics in adult and general education."

The broad developments in the general field of economic education which were noted in our report last year have continued, but the interest and concern of the Committee have been centered largely on economics in the secondary schools. We have not undertaken an independent survey and we do not have statistics on the extent to which or the ways in which economics is now being taught in the schools; but from published materials and from contacts and work with school teachers, administrators, and related organizations, members of the Committee have become increasingly aware of the expansion of economics in school curricula through courses in history, civics, problems of democracy, social studies and business, as well as in formal economics. We are also aware of the confused and uneven character of this development: the inadequate preparation in economics of a great many of the teachers and the consequent lack on their part of the very economic understanding which they are seeking to impart to their pupils; and the mass of highly slanted materials being foisted on the schools in the name of "economics" by special interest groups of all complexions—materials which teachers are not prepared to filter and which teachers and administrators are not prepared to withstand. We are aware, too, that the schools are not happy in this situation. They are coming to realize that their responsibility to society in this area is great and that, as of the present and the immediate future, they are not prepared to meet this responsibility. Added to this realization is the strong belief that the schools are getting no help from the economics profession whose responsibility also is great—that professional economists are either indifferent to or contemptuous of economics in the schools.

It probably does not need to be argued here that over the years the preservation and effective operation of our economic and governmental system will depend upon an alert and informed people. Increasingly, the problems that confront our people both as participants in our political economy and as voters are economic in character. Increasingly in modern society, economic understanding is required of each of us as a condition for personal satisfaction and development and for our common economic and political well-being. To teach

economic understanding to the great bulk of our population is the task, first, of the schools; but it is the responsibility of professional economists on the staffs of our colleges and universities to teach the teachers of economics in the schools and to give continuing guidance and support to their teaching efforts.

Most of us in the economics profession have not responded to this responsibility—and opportunity. On the subject of economics in the schools we have been inclined to say either, "If these pupils are coming to college, don't let them take economics in school; they'll have less to unlearn; if they are not coming to college, don't try to teach economics to them; they won't understand it and a little knowledge is more dangerous than none," or, in the alternative, "Who cares?" But, despite our misgivings and our indifference, the teaching of economics in the schools is demonstrably necessary. It is being undertaken on a large and growing scale; it is here to stay. Professional economists may now deplore the character and quality of much that passes in the schools for economics, but in a very real sense we have foreclosed ourselves, by virtue of our abdication, from the privilege of criticism. The soil we have overlooked or spurned is rich; the resulting growth, fed by those who have special interests to promote and tended by unskilled and overworked caretakers, bids fair to be rank.

Most of those who teach economics in the wide variety of courses offered in the schools today are, to put the matter mildly and simply, not well prepared in economics. Many have never had a formal college course in economics; many took their single college course years ago. Rarely has a teacher of economics in the schools had as much as an undergraduate major in economics. These teachers are pressed to devote much of their time to subjects and areas other than economics—even outside the social sciences; and they are pressured to use as teaching material all kinds of books, pamphlets, reports, charts, pictures, films, sound strips, and other aids (including speakers) prepared and pushed by firms, associations, foundations, and individuals seeking through the medium of economics to enlist the pupils in the acceptance and support of particular brands of social and economic philosophy or courses of action.

This latter condition is not wholly to be deplored; it is of the very essence of a democratic society that people shall be free to present and that people shall be free to judge and accept or reject representations of all kinds. It is one of the claims of economics as a discipline that those who have gained a measure of economic understanding are better able than those less well prepared to make considered and defensible judgments on economic matters. The deplorable fact, however, is that large numbers of teachers in the schools are not prepared by training and education to sift and judge materials relating to economic issues and are even less prepared to give help and guidance to their pupils—future citizens—in the realm of economic understanding.

Teachers and administrators tell us with great earnestness that a major reason why secondary school teachers are so poorly prepared in economics is that economics in the colleges where they receive their teacher training is so poorly taught. They state that teacher-training students who take economics

courses emerge with the conviction that economics is either a set of dry, useless, difficult abstractions about an unreal world, or a bundle of "on this hand and on the other hand" propositions which serve more to confuse than to help the student who seeks understanding. They state, further, that students learn little either by instruction or example that helps them to teach economics in the schools. Finally, they say that large numbers of students who later will teach economics are so repelled by unfavorable reports about economics classes that they do not sign up for economics if they can possibly avoid it. We are not prepared to pass judgment on the validity of these generalizations, but none of us is disposed to doubt that the impression which they reflect is widely prevalent in the ranks of secondary school teachers and administrators.

The situation has two encouraging aspects: (1) There is evidence that school teachers and administrators are eager for help from and eager to cooperate with the economics profession, even though they are critical of the attitude of professional economists and of their teaching. (2) At the same time, there are indications that the professional interest of more than a few economists is being directed to this problem. Some economists are participating with secondary school teachers in economics workshops that have sprung up around the country in recent years under the sponsorship of the Joint Council on Economic Education. Some are working directly with schools in their respective localities. Economists in teacher-training institutions are stepping up their active work on the special teaching problems involved in teaching those who will be teaching economics in the schools.

Both of these developments are good, and both deserve to be encouraged and strengthened. The economics profession will greatly misjudge its responsibility in our society if it continues its long-time indifference to the place and problems of economics in the schools and evidences professional concern for economics only at the college and graduate levels. Serious professional work in this area by economists needs to be given professional support and it needs to be accorded professional status. It needs professional recognition by this Association. Specifically, this Association should establish a standing Committee on Economic Education.

A Committee on Economic Education could, with profit to the Association, the profession, and the economy, undertake activities along the following lines:

1. Serve as a focal point within the American Economic Association for the interests of members professionally concerned with economics in the schools and in adult and general education; stimulate and encourage active, serious, professional work in economic education (in this connection, study and employ the results of that part of the Association's projected questionnaire which is designed to identify those of our members whose interests lie in this area); encourage the preparation of journal articles and arrange for sessions on economic education at the annual meetings of the Association. In general, work to improve the status of economic education within the field of professional economics.

2. Serve as a point of contact within the American Economic Association for persons, organizations, and institutions outside the Association who are

professionally concerned with economic education; symbolize the concern of the Association and its members with the problems of those directly on the firing line; keep open the channels between teachers in the schools and economists, and help to clear up misunderstandings; assist in making available the services of economists where they can be of help. The Committee should make its existence and its functions—and the limits of its functions (for instance, the AEA will not undertake to appraise the “economic soundness” of materials or programs offered to the schools by outsiders!)—known to persons, organizations, and institutions concerned with secondary and adult education in economics.

3. Work closely with any American Economic Association committee concerned with the teaching of economics at the college level, on problems of joint concern related to the teaching of economics in teacher-training institutions.

4. Consider and make recommendations to the Executive Committee on studies in the area of economic education which the Association might encourage, facilitate, or support. (In this connection, we might note that the present Committee considered requesting the Association to support a full-blown study of the extent and character of secondary and adult economic education in the United States. We decided against this move on the ground that while our present knowledge is far from complete and precise, the profession knows enough to set its sights for some time to come. The core of the problem already known is so vast and presents such a formidable area for action that we need not worry about the exact dimensions and nature of its outer reaches.)

Recommendation: We recommend that a standing Committee on Economic Education be established, made up of five members of the Association who have evidenced a serious professional interest in the problems of economics in the schools and in adult and general education.

BEN W. LEWIS, *Chairman*
ARCHIBALD M. McISAAC
PAUL J. STRAYER

REPORT OF THE COMMITTEE ON HONORS AND AWARDS

During 1955 the principal business of the Committee has been to make its recommendation for the Clark medal award. This was done at the spring, 1955, meeting at the Westchester Country Club. That report, which is already in the hands of the Secretary, laid considerable stress upon the mixed feelings with which the members of the Committee made their recommendation. It seems unnecessary here to repeat what was said at some length in that earlier report, except to stress that the members are of the same mind now as they were then. We believe that at some early convenient date, the Executive Committee should consider the wisdom of continuing the Clark award.

During the course of 1956, the Committee on Honors and Awards will have to make a recommendation on the Francis A. Walker medal. The members of our Committee have indicated that they do not have reservations about the Walker medal similar to those for the Clark medal. It seems to us that the Walker medal award is largely free from the difficulties we have encountered in making a recommendation for the Clark medal.

One further point. The Chairman believes that if the AEA continues to award the Walker and Clark medals, then they should be awarded in a ceremonial manner, with all the dignity and formality appropriate to the occasion. These are awards of great distinction to an economist by his fellow economists, and the recipient should feel that he is being highly honored by his fellow scientists in their presence. For this reason, the undersigned feels that the awards should be made just before the President's address at the annual meeting—a formal occasion which assembles probably a larger number of our members than any other. This suggestion is offered to the Executive Committee for its serious consideration.

Respectfully submitted,

NORMAN S. BUCHANAN, *Chairman*

REPORT ON THE ACTIVITIES OF THE INTERNATIONAL ECONOMIC ASSOCIATION, 1954-55

The International Economic Association came formally into existence in September, 1950, when the first meeting of its Council was held to approve draft statutes and to agree on its main lines of future activity. The initial plans for its establishment had been drawn up in a series of meetings held under the aegis of UNESCO during the previous two years. The constitution of the Association represents in effect a federation for certain limited purposes of the various national associations representative of academic economics in many countries. In the initial stages, representatives of the American Economic Association, of the Royal Economic Society, and a small number of individuals and associations, chiefly in European countries, played a leading part. The International Economic Association now has affiliated with it twenty-five national associations, covering the great majority of countries in which academic economics receives serious study. However, no academic body in any of the Iron Curtain countries is affiliated with the Association.

In the first years of the existence of the Association, its main sources of income were grants from UNESCO and small contributions, sufficient to ensure the maintenance of its central organization, received annually from the various national associations. Its total income in 1954 from these sources was about \$13,800. In March, 1954, the Ford Foundation informed the President of the International Economic Association of its willingness to make a grant to the Association of \$115,000, to be spread on a slowly declining scale over a period of five years. This grant was made on the understanding that "the major part of the support requested from the Foundation is to be used to underwrite travel expenses for economists attending International Economic Association conferences and that at least one half of the funds advanced by the Foundation are to be used to finance the travel of delegates from regions less advanced in economics and administration. A small amount of the funds may be used for publication expenses."

The Association convened a meeting of its Executive Committee during June, 1954, to consider its policy and future activities in relation to this new source of income. The year July 1, 1954, to June 30, 1955, represents the first year of the Association's enlarged activities. It has inevitably taken time to expand and develop new forms of activity. The Executive Committee of the Association, meeting at Kitzbühel, Austria, in September, 1955, was satisfied that these had been along the right lines and in planning to develop them further in 1956 and 1957.

The earliest activities of the Association, within the limited budget then available to it, took two principal forms:

1. It has held small round table discussions of some thirty carefully selected specialists working on some limited and defined subject within the field of economics; the method has been to identify some subject of immediate interest; to appoint some two years in advance a small international program committee to plan the agenda and the detailed topics for discussion, to invite

selected scholars to write papers on these topics, to organize the conference and its discussions, and finally to produce a book making available the papers themselves, suitably edited, and a summary record of the discussion.

2. It has published a series of volumes, under the title of *International Economic Papers*, designed to make available in English, as one of the international languages in most common use, some of the more important papers published in languages which are not familiar to the majority of readers. In this way an attempt has been made to break down one of the most serious obstacles to the international transmission of new ideas in economics.

The Association normally holds one round table in each year, though in 1951 two were held consecutively, at the same place and with the same basic organization but with different groups of scholars. The subjects have been as follows:

1. Monaco, 1950: "The Problem of Long-Term International Balance"
(Editor of *Proceedings*: E. A. G. Robinson)
2. Talloires, 1951: "Methods of the Teaching of Economics"
(Editor of *Proceedings*: C. W. Guillebaud)
3. Talloires, 1951: "Monopoly and its Regulation"
(Editor of *Proceedings*: E. H. Chamberlin)
4. Oxford, 1952: "The Business Cycle in the Post-War World"
(Editor of *Proceedings*: E. Lundberg)
5. Santa Margherita, 1953: "The Determinants of Economic Progress"
(Editor of *Proceedings*: L. Dupriez)
6. Seelisberg, 1954: "Wage Determination"
(Editor of *Proceedings*: J. T. Dunlop)
7. Kitzbühel, 1955: "The Economics of Migration"
(Editor of *Proceedings*: Brinley Thomas)

The Conference of 1955 has been on the subject of the "Economics of Migration," a subject chosen in part because it was of immediate practical as well as theoretical significance and of interest both to developed and to under-developed countries. The papers included detailed studies of the problems of countries of immigration (the United States, Canada, Australia, South Africa, Palestine, Brazil); those of countries of emigration (Italy, the Netherlands, Ireland, the United Kingdom); those of intro-European migration (France and Germany, together with the movement from the Iron Curtain countries); those of the Far East (India, Pakistan, and Indonesia). More general and analytical papers examine such questions as the effects of migration on the international economy, on capital formation, on inflation, and the problems of the successful absorption of migrants. Those invited were so chosen as to provide a balance between expert specialized knowledge of the actual working of migration policies and general capacity to apply to these problems wider experience and skill in economic analysis. Past experience has shown that this mixing of specialists and more general economists best contributes to good discussion and the formulation of issues requiring further and more precise analysis. The Conference proved a very valuable opportunity for lively discussion, as well as a meeting ground for many working in this field who had never before met each other or exchanged ideas at firsthand. A contribution of \$2,000 to the costs of the Conference was provided by the Inter-Govern-

mental Committee on European Migration, and also valuable typing and translation facilities which saved the Association considerable expense.

Those who took part in the Conference were:

Professor H. S. Ellis*†	(U. S. A.) (President)
Professor J. J. Spengler*	(U. S. A.)
Professor E. Rubin*	(U. S. A.)
Miss Mabel Timlin*	(Canada)
Professor L. Baudin	(France)
Professor E. James‡	(France)
Professor A. Sauvy†	(France)
Dr. X. Lannes*	(France)
Professor Brinley Thomas*	(United Kingdom)
Professor E. A. G. Robinson‡	(United Kingdom)
Mr. R. Turvey	(United Kingdom)
Mr. J. Isaac†	(United Kingdom)
Mr. J. F. Meenan*	(Eire)
Professor W. Hoffman‡	(Germany)
Dr. Hilde Wander*	(Germany)
Dr. E. Edding*	(Germany)
Professor A. Mahr	(Austria)
Professor E. Lindahl‡	(Sweden)
Professor E. W. Hofstee*	(Netherlands)
Professor G. Beijer	(Netherlands)
Professor G. Parenti*	(Italy)
Professor A. P. Lerner*	(Israel)
Professor R. Bachi*	(Israel)
Professor X. Zolotas‡	(Greece)
Professor H. M. Robertson*	(South Africa)
Dr. W. D. Borrie†	(Australia)
Dr. N. Keyfitz†	(Indonesia)
Professor T. H. Silcock*	(Malaya)
Dr. P. R. Brahmanand†	(India)
Dr. S. Chandrasekhar	(India)
Professor F. Bastos de Avila*	(Brazil)
Mr. H. M. Phillips	(UNESCO)
Dr. P. Jacobsen*	(Inter-Governmental Committee for European Migration)
Mr. E. K. Rahardt	(Inter-Governmental Committee for European Migration)
Dr. J. Zubrzycki*	(Committee for Polish Resettlement)
Dr. W. L. Langrod*	(United Nations, New York)
Mme H. Berger Lieser	(Secretary, IEA)
Dr. D. C. Hague	(Responsible for record of Discus- sion)
Miss J. Baird	(Responsible for record of Discus- sion)

* Prepared papers for the Conference.

† Prepared papers but were unable to attend the Conference.

‡ Member of Executive Committee of the International Economic Association.

The publication of *International Economic Papers* was first planned at the Monaco meeting of the Council of the International Economic Association in September, 1950. The first issue appeared late in 1951. Since then, three further issues have been published and the fifth issue will appear late in 1955. The publication has filled a very important need and its value is coming to be widely appreciated. Experience has shown, however, that accurate translation is a task which requires great care and very detailed editorial attention and that if good work is to be secured it must be adequately paid for. The circulation is steadily increasing and now amounts to about 1,400 copies of the issues which have been longest on sale. But there remains, for the moment at least, a gap of about \$2,500 between expenditure and income. The Executive Committee of the Association has given careful consideration to the position, and is convinced that the translation of important articles into English is such a valuable service to scholarship and to the international propagation of thought in economics that means should continue to be found from the Association's funds to meet this deficit for the next few years, while doing what is practicable to diminish it.

At the same time the Executive Committee has discussed with the Editorial Board of *International Economic Papers* the editorial policies which can best achieve the purposes of the Association. In the past the policy has aimed to cover a wide range of interests in economics, while combining translation of current articles from recent writing with that of earlier articles of historical importance. It is now planned to publish from time to time more specialized volumes of translations of articles in a particular branch of economics that have been published in the less-known languages.

With the additional resources available from the Ford Foundation grant, the Association has been able to improve these original activities in various ways. From its limited budget, the Association has not in the past been able to contribute more than a small fraction of the travel costs of the scholars whose presence at a round table has been very much desired. Within Europe it has generally been possible for those invited to meet the greater part of their own travel expense, but it has meant in the past that a number of those who were invited from more distant countries found themselves unable to find the means of attending, and this particularly affected scholars in many of the underdeveloped countries of South America and the Far East. The Ford Foundation grant has enabled scholars from underdeveloped countries to take part in these activities, to the very considerable benefit not only of themselves and their countries but also of the other participants in the Conference.

During the year 1954-55, the Executive Committee appropriated \$2,000 from the Ford Foundation grant towards the cost of maintaining the publication of *International Economic Papers*. They propose to make a similar appropriation in each of the next few years.

At the same time certain wholly new activities have been started with the aid of the Ford Foundation grant. The principal of these has been the holding of a refresher course in Poona, India. The purpose of this course was to enable some of the younger Indian teachers of economic theory to spend about six weeks in discussing in seminars with outstanding senior European or American scholars some of the more recent developments in economic theory. The

original intention was to hold the course in May, which would have been outside of term-time in Indian universities, and to invite two British and two American scholars to take part. Because time for organization was short, it did not prove possible to find scholars of the necessary caliber who could be free so early as May and the course was moved to the second half of June and the whole of July. Though this conflicted with university terms in India, it was possible to secure the presence of more than thirty younger Indian teachers at the course, as well as a small number of younger teachers from Ceylon, Burma, Malaya, and Pakistan. The government of India took a great interest in the course and made Rs. 40,000 (about \$8,400) available, which covered the whole of the expenses of the Indian students. Because of this generous contribution, the part of the cost of running the course which fell upon the International Economic Association was very considerably less than had originally been expected. The detailed local organization was put into the hands of the Indian Economic Association.

The visiting scholars were to have been N. Kaldor and Joan Robinson (Cambridge University, England), J. K. Galbraith (Harvard University, U.S.A.) and L. Tarshis (Stanford University, U.S.A.). Professor Galbraith had to drop out at the last moment, and Mr. J. Downie (Oxford University, England) took his place very successfully at short notice.

Reports from Professor Vakil, of the University of Bombay, who was primarily responsible for local organization, from those who were teaching, and from the students themselves make it clear that the course was successful and greatly stimulated the powers of thought and increased the knowledge of recent work in economics of those who took part. At the same time, some valuable lessons have been learned for similar undertakings in the future. On this first occasion, it is probably true to say that the course was somewhat overloaded and that greater concentration on a somewhat narrower field would have been better. It might also have been better if students and teachers had lived more closely together, so that the teachers would more quickly have appreciated the problems and difficulties of the students. But these are minor criticisms of detail of an experimental project which has very clearly proved its value and which has been shown by this initial success to justify extension to other areas.

In the light of this evidence, the Executive Committee has decided to conduct two similar courses during 1956. The first will be held somewhere in the Middle East (Athens, Salonika, and Beirut are under consideration) and will be addressed to those countries which normally conduct their teaching of economics in French; the organization will be in the hands of Professors Baudin and James, of the University of Paris, advised by Professor Zolotas, of Athens.

The second will be held in the Far East, based probably on Singapore or Bangkok, and addressed to those countries which can make use of instruction in English—primarily Indonesia, Thailand, the Philippines, Malaya, and possibly (depending on language) Indo-China; the local organization will be in the hands of Professor Silcock, of the University of Singapore, who was present for the Migration Conference at Kitzbühel, and with whom it was thus

possible to work out preliminary arrangements. It is hoped that it may be possible to combine this Far Eastern refresher course with a shorter course held by some of the visiting foreign scholars in Pakistan (which benefited less than had been hoped from this year's course) and with a short conference with the more senior economists of the area, including the staff of the United Nations Economic Commission for Asia and the Far East, possibly in Bangkok.

Apart from these two further Refresher Courses, the main activity of the International Economic Association in 1956 will be the holding of its first General Congress in Rome. This will coincide with the third triennial meeting of the Council of the Association. On the two previous occasions the Association has combined with the meeting of the Council a round table conference in which the members of the Council have taken a share. On this occasion it has been decided to hold a Congress, open to all members of national associations who may wish to participate, in the spacious buildings of the University of Rome, which have been put at the disposal of the Association by the Rector—Professor G. U. Papi—himself one of the most distinguished Italian economists. The general subject of the congress will be "Stability and Progress in the World Economy." The main addresses will be given by Professors Haberler and Viner (U.S.A.), Professor Sir Dennis Robertson (U.K.), Professor D. Perroux (France), Professor E. Lundberg (Sweden). Money from the Ford Foundation grant will be used to enable scholars from more distant and underdeveloped countries to attend.

Respectfully submitted,

HOWARD S. ELLIS, *President of the
International Economic Association*

REPORT OF OUR REPRESENTATIVE TO THE SOCIAL SCIENCE RESEARCH COUNCIL

Although the Social Science Research Council has not initiated new major projects of importance to the economist, projects previously initiated have made progress. The Committee on Economic Growth, under the chairmanship of Simon Kuznets, has been particularly active. Since the fall of 1954 the Committee has held two conferences. One, at MIT in 1954, was concerned with the economic criteria in the formation of investment plans. Another, held at Harvard University in November, 1954, was concerned with entrepreneurship and economic growth. The Committee is planning four more conferences: on choice of technology in economic development, the state and economic growth, management and commitment of the industrial labor force, and government fiscal policy and economic growth. The Committee is also planning an Interuniversity Summer Research Seminar on theories of economic growth, to be held at Dartmouth College in the summer of 1956. Plans for this seminar are being made by Burt F. Hoselitz and Joseph J. Spengler. The Committee has been active in stimulating quantitative studies of economic growth in several European countries. Several of these projects are nearing completion and the Committee anticipates further activities in stimulating studies abroad and in stimulating international interchange of ideas in this area. A provocative note on "Comparative Study of Long-Term Records of Economic Growth" by the Chairman of the Committee was published in the December, 1955, issue of the Council's *Items*.

The Committee on Business Enterprise Research, under the chairmanship of Howard R. Bowen, has likewise been active. It published in May a report on "The Business Enterprise as a Subject for Research" which should prove useful to scholars working in this field. It held a successful conference at Carnegie Institute of Technology in October, 1955, on expectations, uncertainty, and business behavior. The Committee is working on plans for another conference to be held about a year hence. The Committee on Agricultural Economics has been concerned with the problem of the persistence in the United States of agricultural areas of low income and low productivity during periods of general agricultural prosperity. A report on the status of research in this area has been completed and is now under discussion. Previous plans for a handbook on research techniques in agricultural economics have not made progress because of difficulties of financing. The Committee on Labor Market Research is planning to concentrate its attention in the immediate future on the relation of family employment patterns to the structure and functioning of labor markets and to family income and expenditure patterns.

Members of the profession will be interested in the activities of the Committee on Census Monographs. As has been previously reported, the Committee scheduled some eighteen monographs analyzing the results of the census of 1950. Two of the monographs had been published by the end of the year:

"American Agriculture: Its Structure and Place in the Economy," by Roland L. Mighell; and "Income of the American People," by Herman Muller. Others are scheduled for publication in the near future. The Committee is now working on plans for an additional monograph on recent trends in industry, with particular attention to manufacturing, which would make use of the recent census of 1954.

The activities of the Social Science Research Council in stimulating the training of successive generations of research workers in the social sciences is one of its most important functions. Perhaps its most novel undertaking in this respect in recent years has been the work of its Committee on Mathematical Training of Social Sciences, etc., which has given mathematical training to some 105 social scientists in the training institutes held during the summers of 1953 and 1955. These institutes have served not only to train a certain number of social scientists in mathematics but also as experimental programs which should be of value to other institutions wishing to undertake training in this field. It is the feeling of the Committee that the problem of training social scientists in mathematics should eventually be taken over by the universities in both their undergraduate and graduate programs. The experience and materials developed at the summer training institutes should be helpful to the universities in this respect. For the future, the SSRC plans two institutes to be held in the summer of 1957. One of these will be for the application of mathematics to social science problems. It is visualized that this will be attended by a limited number of the persons trained in the previous summer institutes. The other will be designed to train teachers of mathematics in the mathematical needs and interests of social scientists.

In addition to the mathematical training of social scientists, the SSRC has been contributing to the recruiting and training of social scientists through its various fellowship programs. In particular, the experimental undergraduate research training program, which has been operating now for three summers, seems to have proven most successful. In view of the increasing prospective needs for social scientists in both teaching and research, the Council has been reviewing its fellowship and training programs to see in what ways they need to be expanded or modified in the years immediately ahead.

It should be said that while the representatives of the AEA to the SSRC and the staff of the SSRC frequently take initiative in activities of particular interest to economists, the most promising situation for progress is one where a group of interested persons have ideas which they are prepared to submit to the Council for its consideration.

Respectfully submitted,

JOHN PERRY MILLER

REPORT OF OUR REPRESENTATIVE TO THE AMERICAN COUNCIL OF LEARNED SOCIETIES

Your delegate, with Secretary Bell, has kept up with the activities of the Council through the minutes of meetings of its Board of Directors and attendance at the annual meeting. The present year this was held at the Mayflower Hotel in Washington, D.C., January 26-27. It is pleasant to report that the meeting of 1956 took place in a more cheerful atmosphere than has been the case the past two years. As previously reported, the ACLS had been threatened with starvation for lack of funds through the withdrawal of support by the foundation which through the years had been its chief reliance for the continuing overhead expenses. At best, it would have been reduced to a minimal organization and scope of activities. During the past year, it received a new lease on life through substantial grants from two foundations. This gratifying news is qualified, however; for while the means now assured will provide for continuation of approximately the present staff and limited operations, they will not enable functioning on at all the scale of the opportunities that would be open to serve the needs of scholars in the fields of the constituent societies, now twenty-three in number, in the humanistic and social disciplines. For the latter, it will be recalled, the ACLS strives to represent the historical, cultural, and philosophical interests rather than the more strictly scientific through a rough division of labor with the Social Science Research Council. The ACLS also collaborates with the SSRC and with the other major councils in the Conference Board of Research Councils and with other organizations which render important services to learning in general, especially in relations with our government and with foreign countries.

Respectfully submitted,

FRANK H. KNIGHT

REPORT OF OUR REPRESENTATIVE TO THE NATIONAL BUREAU OF ECONOMIC RESEARCH

Eleven reports resulting from the National Bureau's work were published in 1955. On December 31 eleven were in press, seven were approved and about ready to go to press, and six were being reviewed or soon to be reviewed by the Board of Directors for publication. Others were in an advanced stage of preparation, and work on several new projects was under way and advancing effectively.

Reports Published

The Ownership of Tax-Exempt Securities, 1913-1953, by George E. Lent (Occasional Paper 47)

Short-Term Economic Forecasting, by Conference on Research in Income and Wealth

Business Concentration and Price Policy, by a Special Conference of the Universities-National Bureau Committee for Economic Research

A Century and a Half of Federal Expenditures, by M. Slade Kendrick (Occasional Paper 48)

The Korean War and United States Economic Activity, by Bert G. Hickman (Occasional Paper 49)

Government in Economic Life, by Solomon Fabricant (35th Annual Report)

Agricultural Equipment Financing, by Howard G. Diesslin (Occasional Paper 50)

Input-Output Analysis: An Appraisal, by Conference on Research in Income and Wealth

Minimum Price Fixing in the Bituminous Coal Industry, by Waldo E. Fisher and Charles M. James

Distribution's Place in the American Economy since 1869, by Harold Barger

Capital Formation and Economic Growth, by a Special Conference of the Universities-National Bureau Committee for Economic Research

Reports in Press, December 31, 1955

Personal Income during Business Cycles, by Daniel Creamer

Policies to Combat Depression, by a Special Conference of the Universities-National Bureau Committee for Economic Research

Interest as a Source of Personal Income and Tax Revenue, by Lawrence H. Seltzer (Occasional Paper 51)

Consumption and Business Fluctuations: A Case Study of the Shoe, Leather, Hide Sequence, by Ruth P. Mack

Urban Mortgage Lending: Comparative Markets and Experience, by J. E. Morton

Capital Formation in Residential Real Estate: Trends and Prospects, by Leo Grebler, David M. Blank, and Louis Winnick

Problems of Capital Formation: Concepts, Measurement, Controlling Factors, by Conference on Research in Income and Wealth

The Pattern of Financial Asset Ownership: Wisconsin Individuals, 1949, by Thomas R. Atkinson

Measurement and Behavior of Unemployment, by a Special Conference of the Universities-National Bureau Committee for Economic Research

Trends in Employment in the Service Industries, by George J. Stigler

Problems in the International Comparison of Economic Accounts, by Conference on Research in Income and Wealth

Reports Approved for Publication and Soon to Go to Press

The Pattern of Farm Financial Structure, by Donald C. Horton

The Growth of Public Employment in Great Britain, by Moses Abramovitz and Vera Eliasberg

Financial Intermediaries in the Saving and Investment Process in the American Economy, 1900-1952, by Raymond W. Goldsmith

The Differential Tax Burden on Stockholders, by Daniel M. Holland

A Theory of the Consumption Function, by Milton Friedman

Fiscal-Year Reporting for Corporate Income Tax, by W. L. Crum (Technical Paper)

Wages in Germany, 1871-1945, by Gerhard Bry

New Studies

The review of what is known of the economic growth of Soviet Russia, started in the autumn of 1953 with the aid of a grant from the Rockefeller Foundation, was developed rapidly in 1955. It is being directed by G. Warren Nutter and concerned primarily with the question: What has been the growth of Soviet Russia's output over the past three decades?

With the assistance of a grant in 1953 from the Alfred P. Sloan Foundation, work continued actively in 1955 on a project that will render an account of the course of money and "real" wages in the United States from the Civil War to the present day, and of the changes at least since the turn of the century in the relations between the volume of output on the one hand and the quantities of labor and capital employed in production on the other. Leo Wolman is in charge of the wage study and John W. Kendrick is directing the work on productivity.

With a grant from the National Science Foundation, a study dealing with methods of determining the demand for, and supply of, scientific and technical personnel was started in 1954 and substantially completed in 1955. It is being conducted by George J. Stigler and David M. Blank.

A study of the postwar capital market was planned in 1954 and a grant for its conduct was authorized by the Life Insurance Association of America. The study was organized and operations begun in the spring of 1955.

An exploratory investigation into the need for research on public and private pensions was started in the summer of 1955 with the aid of a grant from the Life Insurance Association of America.

Moses Abramovitz began in the autumn of 1955 an exploratory study of

secular changes in the United States and is spending the current year at the National Bureau on a leave of absence from Stanford University.

At the request of the Bureau of the Census the National Bureau is co-operating with the Census in a program to develop, from the 1954 Economic Census, statistics on companies as distinct from establishments. The data and tabulations are being designed to provide basic materials on the structure of the American economy. Solomon Fabricant, Michael Gort, and other members of the staff are participating in the program.

Explorations for three studies in the field of money, credit, and capital were started in the summer. These studies are: (1) "The Quality of Credit in Booms and Depressions." (2) "The Structure and Behavior of Interest Rates." (3) "Changing Structure of Savings and Credit Facilities in the United States."

Research associates appointed for 1954-55 and for 1955-56, and the fields in which they are undertaking projects are:

1954-55

George Borts (Brown University), Business Cycles—Regional Fluctuations

Michael Gort (University of California), Capital Formation and Financing and Company Statistics

George S. Brinegar (University of Connecticut), Agricultural Finance

1955-56

Richard Easterlin (University of Pennsylvania), Economic Growth and Development

Eugene M. Lerner (University of Idaho), History of Wages

T. M. Stanback, Jr. (University of North Carolina), Business Cycles

Universities-National Bureau Committee for Economic Research

The eighth Special Conference under the sponsorship of the Universities-National Bureau Committee for Economic Research was held in October, 1955, and was devoted to consumption and economic development. The ninth Special Conference, to be held in April, 1956, will be devoted to international economics.

The 1955 Annual Meeting of the Conference on Research in Income and Wealth was held in November, 1955, and was devoted to a review of the existing national income statistics of the United States. In June, 1955, a meeting was devoted to regional income.

Directors, Officers, and Staff

Donald H. Woodward was elected Director at Large at the 1955 Annual Meeting; Joseph H. Willits was elected Director at Large beginning July 1, 1955.

C. Arthur Kulp, Dean of the Wharton School of Finance and Commerce, was elected Director by Appointment of the University of Pennsylvania in June, 1955, to fill the unexpired term of C. Canby Balderston who resigned

in August, 1954, to accept appointment as a member of the Board of Governors of the Federal Reserve System.

Frederick V. Waugh resigned as Director by Appointment of the American Farm Economic Association effective with the close of the 1956 Annual Meeting. Harold G. Halcrow was nominated to fill the unexpired term.

Upon his appointment in April, 1955, as a member of the Council of Economic Advisers, Raymond J. Saulnier was granted a leave of absence as a member of the research staff and as Director of the Financial Research Program.

At the 1955 Annual Meeting, Harry Scherman was elected Chairman of the Board, Gottfried Haberler, President, and George B. Roberts, Vice President and Treasurer.

The grant of funds of \$1,250,000 by the Ford Foundation in 1955 will help the National Bureau to continue the program on which it has long been engaged and to undertake related inquiries for which plans had been made.

Respectfully submitted,

JOHN H. WILLIAMS

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OF THE

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1956

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